

TITLE 18. ENVIRONMENTAL QUALITY
CHAPTER 11. DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER QUALITY STANDARDS
ARTICLE 1. WATER QUALITY STANDARDS FOR SURFACE WATERS

Revised August 26, 2005

Section				
R18-11-101.	Definitions			Comment [sep1]: New and revised definitions are considered, including new definitions related to implementation of the antidegradation and biocriteria rules.
R18-11-102.	Applicability			Comment [sep2]: ADEQ proposes to clarify the applicability of the surface water quality standards by excluding certain cooling ponds. A new provision clarifies that the state-adopted water quality standards do not apply to surface waters on Indian lands.
R18-11-103.	Repeated			Comment [sep3]: Editorial changes to revise references to "aquatic and wildlife" (A&W) designated uses to "aquatic life" designated uses (AL) and to remove unnecessary cross-references.
R18-11-104.	Designated Uses			Comment [sep4]: Editorial changes to revise references to A&W designated uses to AL (aquatic life) designated uses.
R18-11-105.	Tributaries; Designated Uses			Comment [sep5]: Editorial changes to remove redundant language in R18-11-106(B).
R18-11-106.	Net Ecological Benefit			Comment [sep6]: Editorial changes to remove references to "unique waters" and to replace the term with "Outstanding Arizona Water."
R18-11-107.	Antidegradation			Comment [sep7]: A new rule to implement antidegradation will be added. ADEQ is still drafting this rule.
<u>R18-11-107.01</u>	<u>Antidegradation Implementation Procedures</u>			Comment [sep8]: ADEQ is proposing a new biocriterion for wadeable, perennial streams.
R18-11-108.	Narrative Water Quality Standards			Comment [sep9]: A new rule prescribing objective criteria to translate the narrative bottom deposits standard is added. Implements R18-11-108(A)(1).
R18-11-108.01	Biocriteria			Comment [sep10]: A new rule prescribing numeric nutrient targets for lakes and reservoirs to implement the narrative nutrient standard.
<u>R18-11-108.02</u>	<u>Narrative Bottom Deposits Standard Implementation Procedures</u>			
<u>R18-11-108.03</u>	<u>Narrative Nutrients Standard Implementation Procedures</u>			
R18-11-109.	Numeric Water Quality Standards			

R18-11-110.	Salinity Standards for the Colorado River
R18-11-111.	Analytical Methods
R18-11-112.	<u>Unique Outstanding Arizona Waters</u>
R18-11-113.	Effluent-Dependent Waters
R18-11-114.	Mixing Zones
R18-11-115.	Repealed
R18-11-116.	Resource Management Agencies
R18-11-117.	Canals and Municipal Park Lakes
R18-11-118.	Dams and Flood Control Structures
R18-11-119.	Natural Background
R18-11-120.	Enforcement
R18-11-121.	Schedules of Compliance
R18-11-122.	Variances
R18-11-123.	<u>Prohibition Limits Against Discharge</u>
Appendix A.	Numeric Water Quality Criteria
Appendix B.	List of Surface Waters and Designated Uses
Appendix C.	Effluent Dependent Waters

Comment [sep11]: Amended to incorporate by reference the 2002 plan of implementation of the Colorado River Salinity Control Forum

Comment [sep12]: ADEQ proposes to revise the unique waters rule to change “unique water” to “Outstanding Arizona Water.” Other editorial changes have been made to make the rule more understandable. ADEQ proposes to clarify the reach descriptions for some OAWs. ADEQ proposes to repeal some of the factors that ADEQ may consider when making a decision of an OAW nomination, including “agency resource constraints.” Finally, ADEQ will repeal some of the site-specific standards that have been established for some OAWs because they have been superseded by more recently adopted water quality criteria.

Comment [sep13]: List of EDWs substantially increased. EDWs are now listed in a new Appendix rather than within the body of R18-11-113.

Comment [sep14]: Minor editorial change to reference “Outstanding Arizona Water” instead of “unique water.”

Comment [sep15]: New limits on turbidity-causing discharges (an upstream / downstream) standard.

Comment [sep16]: Criteria are consolidated into a single table in the Appendix with human health and aquatic life criteria. Criteria are substantially revised. New exposure assumptions, updated Rfds and cancer potency slopes, toxicity data, and new criteria derivation methodologies were used to derive numeric water quality criteria.

Comment [sep17]: Re-organized and reformatted. Location information for specific surface waters revised. New EDWs included in Appendix B.

Comment [sep18]: The list of EDWs is expanded to include new EDWs classified by ADEQ through the implementation of R18-11-113(E).

ARTICLE 1. WATER QUALITY STANDARDS FOR SURFACE WATERS

R18-11-101. Definitions

The terms of this Article have the following meanings:

1. “Acute toxicity” means toxicity involving a stimulus severe enough to induce a response rapidly. In aquatic toxicity tests, an effect observed in 96 hours or less is considered acute.
2. “AgI” means agricultural irrigation.
3. “AgL” means agricultural livestock watering.
4. “Agricultural irrigation” means the use of a surface water for the irrigation of crops.
5. “Agricultural livestock watering” means the use of a surface water as a supply of water for consumption by livestock.
6. “Annual mean” means the arithmetic mean of monthly values determined over a consecutive 12-month period, provided that monthly values are determined for at least three months. The monthly value is the arithmetic mean of all values determined in a calendar month..
7. “Aquatic and wildlife life (cold water)” means the use of a surface water by animals, plants, or other ~~cold~~ water organisms, generally occurring at elevations greater than 5000 feet, for habitation, growth, or propagation.
8. “Aquatic and wildlife life (effluent-dependent water)” means the use of an effluent-dependent water by animals, plants, or other organisms for habitation, growth, or propagation.
9. “Aquatic and wildlife life (ephemeral)” means the use of an ephemeral water by animals, plants, or other organisms, excluding fish, for habitation, growth, or propagation.
10. “Aquatic and wildlife life (warm water)” means the use of a surface water by animals, plants, or other ~~warm water~~ organisms, generally occurring at elevations less than 5000 feet, for habitation, growth, or propagation.
“Arizona Pollutant Discharge Elimination System permit” means the point source discharge permit program established by §402 of the Clean Water Act [33 U.S.C. §1342].
“Assimilative capacity” means the difference between the baseline water quality concentration for a pollutant and the most stringent applicable water quality criterion for that pollutant.
11. “A&We” “ALc” means aquatic and wildlife life (cold water).
12. “A&We” “ALe” means aquatic and wildlife life (ephemeral).
13. “A&Wedw” “ALedw” means aquatic and wildlife life (effluent-dependent water).
14. “A&Ww” “ALw” means aquatic and wildlife life (warm water).
15. “Clean Water Act” means the Federal Water Pollution Control Act [33 U.S.C. §§ 1251 to 1387].

Comment [sep19]: Definitions of “aquatic and wildlife” designated uses changed to “aquatic life” designated uses.

Comment [sep20]: A new definition of AZPDES permit is added because ADEQ now has primacy over the NPDES permit program.

Comment [sep21]: A new definition of assimilative capacity is added because the term is used in the new antidegradation implementation rule.

Comment [sep22]: New acronyms for aquatic life designated uses are added to replace A&W designated uses.

46. “Criteria” means elements of water quality standards ~~that are~~ expressed as pollutant concentrations, levels, or narrative statements representing a water quality that supports a designated use.
47. “Designated use” means a use specified in Appendix B of this Article for a surface water.
48. “Domestic water source” means the use of a surface water as a potable water supply. Coagulation, sedimentation, filtration, disinfection, or other treatments may be necessary to yield a finished water suitable for human consumption.
49. “DWS” means domestic water source.
50. “EDW” means effluent-dependent water.
51. “Effluent-dependent water” means a surface water that consists of discharges of treated wastewater that is classified as an effluent-dependent water by the Director under R18-11-113. An effluent-dependent water is a surface water that, without the discharge of treated wastewater, would be an ephemeral water.
52. “Ephemeral water” means a surface water that has a channel that is at all times above the water table and that flows only in direct response to precipitation.
53. “Existing use” means a use of a surface water that occurs in a surface water or a use that the existing water quality of a surface water will allow.
54. “FBC” means full-body contact.
55. “FC” means fish consumption.
56. “Fish consumption” means the use of a surface water by humans for harvesting aquatic organisms for consumption. Harvestable aquatic organisms include, but are not limited to, fish, clams, turtles, crayfish, and frogs.
57. “Full-body contact” means the use of a surface water for swimming or other recreational activity that causes the human body to come into direct contact with the water to the point of complete submergence. The use is such that ingestion of the water is likely and sensitive body organs, such as the eyes, ears, or nose, may be exposed to direct contact with the water.
58. “Geometric mean” mean the nth root of the product of n items or values. The geometric mean is calculated using the following formula:

(need equation here)

59. “Hardness” means the sum of the calcium and magnesium concentrations, expressed as calcium carbonate (CaCO_3) in milligrams per liter.

- “Heterogeneous substrate”** means a mixture of particle sizes comprising the stream bottom that is less than 50% composed by travertine, bedrock or sand.
- 30. “Intermittent surface water”** means a stream or reach of a stream that flows continuously only at certain times of the year when it receives water from a spring or from another source, such as melting snow.
- “Minimal degradation”** means the consumption of less than 10 percent of the available assimilative capacity for a pollutant.
- 31. “Mixing zone”** means a prescribed area or volume of a surface water that is contiguous to a point source discharge where initial dilution of the discharge takes place.
- 32. “National Pollutant Discharge Elimination System”** means the point source discharge permit program established by §402 of the Clean Water Act [33 U.S.C. §1342].
- 33. “Ninetieth percentile”** means the value which may not be exceeded by more than 10% of the observations in a consecutive 12 month period. A minimum of 10 samples, each taken at least 10 days apart, are required to determine a ninetieth percentile.
- 34. “NNS”** means no numeric standard.
- 35. “Oil”** means petroleum in any form, including but not limited to crude oil, gasoline, fuel oil, diesel oil, lubricating oil, or sludge.
- “Outstanding Arizona Water”** means a surface water that is classified under as an outstanding state water resource under R18-11-112 because: 1) it is of exceptional recreational or ecological significance, or 2) threatened or endangered species are known to be associated with the surface water and maintaining and protecting the existing water quality is essential to the maintenance and propagation of a threatened or endangered species or 3) it provides critical habitat for a threatened or endangered species.
- 36. “Partial-body contact”** means the recreational use of a surface water that may cause the human body to come into direct contact with the water, but normally not to the point of complete submergence (for example, wading or boating). The use is such that ingestion of the water is not likely and sensitive body organs, such as the eyes, ears, or nose, will not normally be exposed to direct contact with the water.
- 37. “PBC”** means partial-body contact.
- 38. “Perennial surface water”** means a surface water that flows continuously throughout the year.
- 39. “Pollutant”** means fluids, contaminants, toxic wastes, toxic pollutants, dredged spoil, solid waste, substances and chemicals, pesticides, herbicides, fertilizers and other agricultural chemicals, incinerator residue, sewage, garbage, sewage sludge, munitions, petroleum products, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and mining, industrial, municipal, and agricultural wastes or any other liquid, solid, gaseous, or hazardous substance.
- 40. “Practical quantitation limit”** means the lowest level of quantitative measurement that can be reliably achieved during routine laboratory operations.

Comment [sep23]: This term is used in the new biocriteria rule.

Comment [sep24]: This term is used in the new antidegradation implementation rule.

Comment [sep25]: References to NPDES permits are being replaced with “Arizona Pollutant Discharge Elimination System” or AZPDES permits.

Comment [sep26]: ADEQ will not use the NNS abbreviation in the table of numeric water quality standards found in Appendix A.

Comment [sep27]: A new definition is added to replace “unique water.”

41. “Recreational uses” means the full-body contact and partial-body contact designated uses.

42. “Regional Administrator” means the Regional Administrator of Region IX of the U.S. Environmental Protection Agency.

“Riffle habitat” means a segment of a stream where moderate water velocity and substrate roughness produce moderately turbulent conditions which break the surface tension of the water and may produce white water.

Comment [sep28]: This term is used in the new bottom deposits standard implementation procedures rule.

“Run habitat” means a segment of a stream where there is moderate water velocity which does not break the surface tension of the water and does not produce white water.

Comment [sep29]: This term is used in the new bottom deposits standard implementation procedures rule.

“Serious degradation” means a deterioration in water quality that results in a violation of an applicable water quality standard.

Comment [sep30]: This term is used in the new antidegradation implementation rule.

“Significant degradation” means the consumption of 10 percent or more of the available assimilative capacity for a pollutant.

43. “Surface water” means a water of the United States and includes the following:

- a. A water that is currently used, was used in the past, or may be susceptible to use in interstate or foreign commerce;
- b. An interstate water, including an interstate wetland;
- c. All other waters, such as an intrastate lake, reservoir, natural pond, river, stream (including an intermittent or ephemeral stream), creek, wash, draw, mudflat, sandflat, wetland, slough, backwater, prairie pothole, wet meadow, or playa lake, the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce, including any such water:
 - i. That is or could be used by interstate or foreign travelers for recreational or other purposes;
 - ii. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
 - iii. That is used or could be used for industrial purposes by industries in interstate or foreign commerce;
- d. An impoundment of a surface water as defined by this definition;
- e. A tributary of a surface water identified in subsections (a) through (d) of this definition; and
- f. A wetland adjacent to a surface water identified in subsections (a) through (e) of this definition.

44. “Total nitrogen” means the sum of the concentrations of ammonia (NH_3), ammonium ion (NH_4^+), nitrite (NO_2^-), and nitrate (NO_3^-), and dissolved and particulate organic nitrogen expressed as elemental nitrogen.

45. “Total phosphorus” means all of the phosphorus present in a sample, regardless of form, as measured by a persulfate digestion procedure.

46. “Toxic” means a pollutant, or combination of pollutants, which after discharge and upon exposure, ingestion, inhalation, or assimilation into an organism, either directly from the environment or indirectly by ingestion through food chains, may cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunctions in reproduction), or physical deformations in the organism or its offspring.
47. “Unique water” means a surface water that is classified as an outstanding state resource water by the Director under R18-11-112.
48. “Use attainability analysis” means a structured scientific assessment of the factors affecting the attainment of a designated use including physical, chemical, biological, and economic factors.
- “Wadeable stream” means a stream with a water depth and velocity that can be safely waded across when collecting water quality samples.
- “Water quality standard” means a provision of this Article consisting of a designated use for a surface water and narrative or numeric criteria representing a quality of water supporting the designated use.
49. “Wetland” means an area that is inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions. A wetland includes a swamp, marsh, bog, ciénega, tinaja, and similar areas.
50. “Zone of passage” means a continuous water route of volume, cross-sectional area, and quality necessary to allow passage of free-swimming or drifting organisms with no acutely toxic effect produced on the organisms.

Comment [sep31]: ADEQ proposes to replace “unique water” with “Outstanding Arizona Water.”

Comment [sep32]: ADEQ recommends sampling in streams that are flowing at velocities and depths whose product is less than 9 (e.g., velocity = 4.5 ft/s * 2 ft deep)

Comment [sep33]: This definition of water quality standard is consistent with the federal definition of water quality standard in EPA’s Water Quality Standards Regulation.

R18-11-102. Applicability

- A. The water quality standards prescribed in this Article apply to surface waters.
- B. The water quality standards prescribed in this Article do not apply to the following:
 1. A waste treatment system, including an impoundment, pond, lagoon, or constructed wetland that is a part of the waste treatment system.
 2. A man-made surface impoundment and associated ditches and conveyances used in the extraction, beneficiation, or processing of metallic ores, including a pit, pregnant leach solution pond, raffinate pond, tailing impoundment, decant pond, pond or a sump in a mine pit associated with dewatering activity, pond holding water that has come into contact with a process or product and that is being held for recycling, spill or upset catchment pond, or pond used for on-site remediation, that is not a surface water or is located in an area that once was a surface water but no longer remains a surface water because it has been and remains legally converted.
 3. A man-made cooling pond that is neither created originally in a surface water nor results from the impoundment of a surface water.
 4. A surface water located on tribal lands.

R18-11-103. Repealed

Comment [sep34]: This exclusion for man-made cooling ponds is based on EPA's regulatory definition of "waters of the United States" at 40 CFR §122.2. The federal definition of "waters of the United States" contains the following language: "Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the CWA (other than cooling ponds as defined in 40 CFR 423.11(m) which also meet this definition) are not waters of the United States. This exclusion applies only to manmade bodies of water which neither were originally created in waters of the United States (such as disposal area in wetlands) nor resulted from the impoundment of waters of the United States."

Comment [sep35]: This exclusion clarifies that Arizona does not have jurisdiction to regulate water quality of surface waters on Indian lands and cannot adopt WQS for them.

R18-11-104. Designated Uses

- A. The Director shall adopt or remove a designated use ~~or subcategory of a designated use~~ by rule.
- B. Designated uses of a surface water may include full-body contact, partial-body contact, domestic water source, fish consumption, aquatic ~~and wildlife life~~ (cold water), aquatic ~~and wildlife life~~ (warm water), aquatic ~~and wildlife life~~ (ephemeral), aquatic ~~and wildlife life~~ (effluent-dependent water), agricultural irrigation, and agricultural livestock watering. The designated uses for specific surface waters are listed in Appendix B of this Article.
- C. Numeric water quality criteria to maintain and protect water quality for the designated uses are prescribed in Appendix A, R18-11-109, R18-11-110, and R18-11-112. ~~Narrative water quality standards to protect all surface waters are prescribed in R18-11-108.~~
- D. If a surface water has more than one designated use listed in Appendix B, the most stringent water quality criterion applies.
- E. The Director shall revise the designated uses of a surface water if water quality improvements result in a level of water quality that permits a use that is not currently listed as a designated use in Appendix B.
- F. In designating uses of a surface water and in establishing water quality criteria to protect the designated uses, the Director shall take into consideration the applicable water quality standards for downstream surface waters and shall ensure that the water quality standards that are established for an upstream surface water also provide for the attainment and maintenance of the water quality standards of downstream surface waters.
- G. A use attainability analysis shall be conducted prior to removal of a designated use or adoption of a subcategory of a designated use ~~that requires with~~ less stringent water quality criteria.
- H. The Director may remove a designated use or adopt a subcategory of a designated use ~~that requires with~~ less stringent water quality criteria, provided the designated use is not an existing use and it is demonstrated through a use attainability analysis that attaining the designated use is not feasible for any of the following reasons:
 1. A naturally-occurring pollutant concentration prevents the attainment of the use;
 2. A natural, ephemeral, intermittent, or low-flow condition or water level prevents the attainment of the use;
 3. A human-caused condition or source of pollution prevents the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place;
 4. A dam, diversion, or other type of hydrologic modification precludes the attainment of the use, and it is not feasible to restore the surface water to its original condition or to operate the modification in a way that would result in attainment of the use;

Comment [sep36]: This language is redundant and unnecessary.

Comment [sep37]: ADEQ is proposing to change references to "aquatic and wildlife" to "aquatic life."

Comment [sep38]: Cross-references to rules where numeric and narrative criteria may be found are unnecessary.

5. A physical condition related to the natural features of the surface water, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, precludes attainment of an aquatic life designated use; or
6. Controls more stringent than those required by § 301 (b) and § 306 of the Clean Water Act [33 U.S.C. §1311 and §1316] are necessary to attain the use and implementation of the controls would result in substantial and widespread economic and social impact.

R18-11-105. Tributaries; Designated Uses

The following water quality standards apply to a surface water that is not listed in Appendix B but that is a tributary to a listed surface water:

1. The aquatic ~~and wildlife life~~ (ephemeral) and partial-body contact standards apply to ~~an unlisted a tributary~~ that is an ephemeral water.
2. The aquatic ~~and wildlife life~~ (cold water), full-body contact and fish consumption standards apply to ~~an unlisted a tributary~~ that is a perennial or intermittent surface water and is above 5000 feet in elevation.
3. The aquatic ~~and wildlife life~~ (warm water), full-body contact and fish consumption standards apply to ~~an unlisted a tributary~~ that is a perennial or intermittent surface water and is below 5000 feet in elevation.

Comment [sep39]: ADEQ proposes to change references to "aquatic and wildlife" designated uses to "aquatic life" designated uses. The term "aquatic life" is more consistent with the methodologies used to derive water quality criteria for the designated uses.

Comment [sep40]: The word, "unlisted," is unnecessary. The opening sentence of the section states that the default water quality standards prescribed in the rule apply to surface waters that are not listed in Appendix B but are tributary to a listed surface water.

R18-11-106. Net Ecological Benefit

- A. The Director may, by rule, modify a water quality standard on the ground that there is a net ecological benefit associated with the discharge of effluent to support or create a riparian and aquatic habitat in an area where water resources are limited. The Director may modify a water quality standard for a pollutant if it is demonstrated that:
1. The discharge of effluent creates or supports an ecologically valuable aquatic, wetland, or riparian ecosystem in an area where these resources are limited;
 2. The ecological benefits associated with the discharge of effluent under a modified water quality standard exceed the environmental costs associated with the elimination of the discharge of effluent;
 3. The cost of treatment to achieve compliance with a water quality standard is so high that it is more cost effective to eliminate the discharge of effluent to the surface water. The discharger shall demonstrate that it is feasible to eliminate the discharge of effluent that creates or supports the ecologically valuable aquatic, wetland, or riparian ecosystem and that a plan to eliminate the discharge is under active consideration;
 4. The discharge of effluent to the surface water will not cause or contribute to a violation of a water quality standard that has been established for a downstream surface water;
 5. All practicable point source discharge control programs, including local pretreatment, waste minimization, and source reduction programs are implemented; and
 6. The discharge of effluent does not produce or contribute to the concentration of a pollutant in the tissues of aquatic organisms or wildlife that is likely to be harmful to humans or wildlife through food chain concentration.
- B. The Director shall not modify a water quality criterion for a pollutant to be less stringent than a technology-based effluent limitation that applies to the discharge of that effluent. ~~The discharge of effluent shall, at a minimum, comply with applicable technology based effluent limitations.~~

Comment [sep41]: This second sentence is redundant. It restates the preceding sentence in subsection B.

R18-11-107. Antidegradation

- A. The Director shall determine whether there is degradation of water quality in a surface water on a pollutant-by-pollutant basis.
- B. Tier 1: The level of water quality necessary to protect existing uses shall be maintained and protected. No degradation of existing water quality is permitted in a surface water where the existing water quality does not meet the applicable water quality standard.
- C. Tier 2: Where existing water quality in a surface water is better than the applicable water quality standard, the existing water quality shall be maintained and protected. The Director may allow limited degradation of existing water quality in the surface water, provided that the Department holds a public hearing on whether degradation should be allowed under the general public hearing procedures prescribed at R18-1-401 and R18-1-402 and the Director makes all of the following findings:
 - 1. The level of water quality necessary to protect existing uses is fully protected. Water quality shall not be lowered to a level that does not comply with applicable water quality standards.
 - 2. The highest statutory and regulatory requirements for new and existing point sources are achieved.
 - 3. All cost-effective and reasonable best management practices for nonpoint source pollution control are implemented.
 - 4. Allowing lower water quality is necessary to accommodate important economic or social development in the area where the surface water is located.
- D. Tier 3: Existing water quality shall be maintained and protected in a surface water that is classified as a unique water Outstanding Arizona Water under R18-11-112. The Director shall not allow limited degradation of a unique water an Outstanding Arizona Water under subsection (C).
- E. The Department shall implement this Section in a manner consistent with § 316 of the Clean Water Act [33 U.S. C. §1326] if a potential water quality impairment associated with a thermal discharge is involved.

Comment [sep42]: ADEQ is changing references to “unique waters” to “Outstanding Arizona Water” (OAW). The use of OAW is more consistent with terminology used in the federal antidegradation rule. The federal rules and antidegradation guidance refer to “outstanding national resource waters” when discussing Tier 3 antidegradation protection.

R18-11-107.01 Antidegradation Implementation Procedures

[Still being drafted]

Comment [sep43]: ADEQ has drafted a guidance document entitled *Antidegradation Implementation Procedures* (March, 2005). ADEQ continues to work on an antidegradation implementation procedures rule that will incorporate parts of the guidance document that have regulatory effect into this rule. ADEQ will address the use of antidegradation in the § 305(b) water quality assessment and § 303(d) listing processes in the Impaired Waters Rule.

R18-11-108. Narrative Water Quality Standards

- A. A surface water shall be free from pollutants in amounts or combinations that:
 - 1. Settle to form bottom deposits that inhibit or prohibit the habitation, growth, or propagation of aquatic life;
 - 2. Cause objectionable odor in the area in which the surface water is located;
 - 3. Cause off-taste or odor in drinking water;
 - 4. Cause off-flavor in aquatic organisms;
 - 5. Are toxic to humans, animals, plants, or other organisms;
 - 6. Cause the growth of algae or aquatic plants that inhibit or prohibit the habitation, growth, or propagation of other aquatic life or that impair recreational uses;
 - 7. Cause or contribute to a violation of an aquifer water quality standard prescribed in R18-11-405 or R18-11-406; or
 - 8. Change the color of the surface water from natural background levels of color.
- B. A surface water shall be free from oil, grease, and other pollutants that float as debris, foam, or scum; or that cause a film or iridescent appearance on the surface of the water; or that cause a deposit on a shoreline, bank, or aquatic vegetation. The discharge of lubricating oil or gasoline associated with the normal operation of a recreational watercraft is not a violation of this narrative standard.
- C. A discharge of suspended solids to a surface water shall not be in quantities or concentrations that either interfere with the treatment processes at the nearest downstream potable water treatment plant or substantially increase the cost of handling solids produced at the nearest downstream potable water treatment plant.

Comment [sep44]: No changes to the narrative water quality standards.

R18-11-108.01 Biocriteria

A. The biological integrity of a wadeable, perennial stream, as determined by the applicable Arizona Index of Biological Integrity for a cold water or warm water stream, shall be protected at or above the 25th percentile of reference condition.

B. The biocriterion prescribed in section A applies only to wadeable, perennial streams with riffle or run habitats, heterogeneous substrates, and either an aquatic life (cold water) or aquatic life (warm water) designated use. The biocriterion prescribed in section A does not apply to the following types of surface waters:

1. Effluent dependent waters,
2. Ephemeral waters,
3. Intermittent waters,
4. Large rivers,
5. Lakes and reservoirs, and
6. Wetlands.

C. A person who conducts a bioassessment to assess biological integrity and determine compliance with subsection A shall use the bioassessment protocols prescribed in *Biocriteria Program Quality Assurance Program* (August, 2005)

Comment [sep45]: ADEQ has developed two separate indexes of biological integrity for cold water and warm water streams. They are:
1) *Development and Testing of a Biological Index for Coldwater Streams of Arizona* (July, 2000), and
2) *Development and Testing of a Biological Index for Warmwater Streams of Arizona* (Revised March, 2000).

Comment [sep46]: The 25th percentile of reference condition is defined by an IBI score. For warm water streams the IBI score is 59. For cold water streams, the IBI score is 90.

Comment [sep47]: The narrative biocriterion has limited applicability. The biocriterion applies only to wadeable, perennial streams because they are the only water body types for which ADEQ has developed indexes of biological integrity.

Comment [sep48]: ADEQ has developed bioassessment protocols to assess biological integrity in wadeable, perennial streams. ADEQ protocols must be used to make valid comparisons to ADEQ indexes of biological integrity. The ADEQ bioassessment protocols are fully described in the *Biocriteria Program Quality Assurance Program* document.

Comment [sep49]: ADEQ has drafted implementation procedures for how biocriteria will be used in the §305(b) water quality assessment and §303(d) listing processes. ADEQ will address these implementation issues in the Impaired Water Rules.

R18-11-108.02 Narrative Bottom Deposits Standard Implementation Procedures

- A. A wadeable, perennial stream shall be free from fine sediments that settle to form bottom deposits in amounts that inhibit or prohibit the habitation, growth, or propagation of aquatic life.
- B. ADEQ shall use the average percentage of fine sediments in riffle and run habitats of a wadeable, perennial stream, as determined by the Wolman pebble count procedure, to determine compliance with the narrative bottom deposits standard.
1. The narrative bottom deposits standard is attained if the average percentage of fine sediments in riffle and run habitats of a wadeable, perennial stream is less than 20%.
 2. The narrative bottom deposits standard is violated if the average percentage of fine sediments in riffle and run habitats of a wadeable perennial stream is greater than or equal to 35 percent.
 3. The narrative bottom deposits standard is violated if the average percentage of fine sediments in riffle and run habitats of a wadeable, perennial stream is between 20% and 35% and the results of a bioassessment performed at the same time as the pebble count using *ADEQ Procedures for Macroinvertebrate Sampling and Analysis* (ADEQ, 2003) indicate that the narrative biocriterion is violated.

Comment [sep50]: This rule is supported by an implementation procedures guidance document entitled *Narrative Bottom Deposits Standard Implementation Procedures* (June, 2005). The guidance document contains the rationale for selection of the average percentage of fine sediments as the indicator to implement the narrative bottom deposits standard. The guidance document includes citations to the scientific literature relied upon by ADEQ which support the selected assessment criteria.

Comment [sep51]: Implementation procedures for the narrative bottom deposits standard apply only in wadeable, perennial streams. The research supporting the IPs is primarily relates to adverse effects of bottom deposits on benthic macroinvertebrate and fish communities.

Comment [sep52]: The rationale for the selection of average percentage of fine sediment in riffle / run habitats may be found in the associated implementation procedures document.

Comment [sep53]: There appears to be general consensus in the scientific literature that when the average percentage of fine sediments in riffle / run habitats is less than 20%, aquatic life is not adversely affected.

Comment [sep54]: There appears to be general agreement that when the average percentage of fine sediments in riffle / run habitats exceeds 35%, benthic macroinvertebrate and fish communities are adversely affected.

Comment [sep55]: There is uncertainty re: adverse effects on aquatic life when the average percentage of fine sediments in riffle / run habitats is between 20% and 35%. For this reason, ADEQ will require confirmation through bioassessment that the biological community is impaired before making a determination that the narrative bottom deposits standard is violated.

Comment [sep56]: ADEQ has drafted implementation procedures for how the narrative bottom deposits standard is used in the §305(b) water quality assessment and §303(d) listing processes. ADEQ will address these issues in the Impaired Water Rules.

R18-11-108.03 Narrative Nutrients Standard Implementation Procedures

- A. A lake, pond or reservoir shall be free from pollutants in amounts or combinations that cause the excessive growth of algae or aquatic plants that impair an aquatic life, recreational, or domestic water source designated use.
- B. The narrative nutrient standard prescribed in subsection A for a lake or reservoir is violated if numeric targets for both chlorophyll-a and secchi depth are both exceeded. ADEQ will determine that the narrative nutrient standard is violated if the upper value in the target range for chlorophyll-a is exceeded and the measured secchi depth is less than the lower value in the target range for secchi depth for the lake category in the following table.

Comment [sep57]: This is a restatement of the narrative nutrient standard in R18-11-108(A)(6) as applied to lakes and reservoirs.

Numeric Targets for Lakes and Reservoirs

Beneficial Use	Lake Category	Chl-a (ug/L)	Secchi Depth (m)	Total Phosphorus (ug/L)	Total Nitrogen (mg/L)	Total Kjehldal Nitrogen (TKN) (mg/L)	Blue-Green Algae (per ml)	Blue-Green Algae (% of total count)
FBC	Deep	10-15	1.5-2.5	70-90	1.2-1.4	1.0-1.1	20,000	
	Shallow	10-15	1.5-2.0	70-90	1.2-1.4	1.0-1.1		
	Igneous	20-30	0.5-1.0	100-125	1.5-1.7	1.2-1.4		
	Sedimentary	20-30	1.5-2.0	100-125	1.5-1.7	1.2-1.4		
	Urban	20-30	0.5-1.0	100-125	1.5-1.7	1.2-1.4		
ALc	All	5-15	1.5-2.0	50-90	1.0-1.4	0.7-1.1	<50	
ALw	All (except urban lakes)	25-40	0.8-1.0	115-140	1.6-1.8	1.3-1.6		
ALw	Urban	30-50	0.7-1.0	125-160	1.7-1.9	1.4-1.7		
DWS	All	10-20	0.5-1.5	70-100	1.2-1.5	1.0-1.2	20,000	

Comment [sep58]: Implementation procedures for the narrative nutrient standard for lakes, ponds and reservoirs employ two approaches. First, ADEQ will look to the primary response variables, chlorophyll a concentrations and secchi depth to determine when the narrative nutrient standard is violated. The narrative standard is violated in a lake, pond or reservoir if **both** of the following conditions are met: 1) The chlorophyll a concentration exceeds the upper value in the range prescribed for the lake classification; AND 2) The secchi depth is less than the lower value in the range.

The second approach employs a weight of evidence approach and is described in subsection C below.

C. The narrative nutrient standard is violated if the measured values for chlorophyll-a or secchi depth are within the prescribed range for the lake category and there is other evidence of a use impairment.

ADEQ will consider the following factors when applying this weight-of-evidence approach:

1. Evidence of toxic algae blooms;
2. Fish kills;
3. Taste or odor problems in the water;
4. The concentration of total phosphorus, total nitrogen, or TKN exceed the upper value in the range prescribed for the lake category in the above table;
5. The concentration of blue-green algae exceeds 20,000 per milliter;
6. The percentage of blue-green algae is greater than 50% of the total algae count.

Comment [sep59]: When either chlorophyll a concentrations or secchi depths (or both) are within the range of values prescribed for the lake classification, ADEQ will look to other indicators of use impairment before making a determination that the narrative nutrient standard is violated. Lakes with chlorophyll a concentrations and secchi depths within the prescribed ranges may be considered "borderline" cases that may or may not have nutrient enrichment problems. ADEQ will employ a weight of evidence approach and consider the factors outlined in (C) (1 -6) before making a determination that the narrative standard is violated or not.

R18-11-109. Numeric Water Quality Standards

A. The following water quality standards for *Escherichia coli* (*E. coli*), expressed in colony forming units per 100 milliliters of water (cfu / 100 ml) or as a Most Probable Number (MPN), shall not be exceeded:

E. coli

Geometric mean (four sample minimum) (4-sample minimum in 30 days)

FBC

PBC

126

126

Single sample maximum (Designated bathing beaches & swimming areas)

235

Single sample maximum (All other surface waters)

575

575

B. The following water quality standards for pH, expressed in standard units, shall not be violated:

pH

DWS

FBC, PBC, A&W⁴

AgI

AgL

Maximum

9.0

9.0

9.0

9.0

Minimum

5.0

6.5

4.5

6.5

Maximum change

NNS

0.5

NNS

NNS

due to discharge

C.

The following maximum allowable increase in ambient water temperature, expressed in degrees Celsius, shall not be exceeded:

Temperature

ALw, ALedw

ALe

Maximum increase

due to a thermal discharge²⁻³

3.0

1.0

D.

The following water quality standard for suspended sediment concentration, expressed as a geometric mean (four sample minimum) shall not be exceeded. The standard applies to a surface water that is at or near base flow and does not apply to a surface water during or soon after a precipitation event:

ALc, ALw

80 mg / L

E.

The following are the water quality standards for dissolved oxygen, expressed in milligrams per liter (mg/L). The dissolved oxygen concentration in a surface water shall not fall below the following minimum concentrations:

1. **Dissolved oxygen**

ALw

ALe

Single sample minimum⁴

6.0

7.0

2. **Dissolved oxygen in effluent-dependent waters**

ALedw

(single sample minimum):

3.0

Three hours after sunrise to sunset

Comment [sep60]: ADEQ has drafted implementation procedures for how the narrative nutrients standard for lakes and reservoirs will be used in the §305(b) assessment and §303(d) listing processes and will include these in the Impaired Water Rules.

Comment [sep61]: ADEQ is adding a reference to Most Probable Number to clarify that *E. coli* analytical methods other than membrane filtration techniques may be used to estimate *E. coli* concentrations (e.g. Colilert, multiple tube fermentation techniques).

Comment [sep62]: ADEQ is proposing a 30-day averaging period for the *E. coli* standard expressed as a geometric mean. The 30-day averaging period is consistent with EPA's 1986 Ambient Water Quality Criteria recommendations for bacteria. The 4-sample minimum will allow a geometric mean to be calculated from the results of samples collected on a weekly basis.

Comment [sep63]: EPA recommends single sample maximum (SSM) criteria for *E. coli* based on one-sided confidence levels (CLs). These CLs are associated with varying levels of full body contact recreational use. The EPA-recommended SSM allowable density for *E. coli* for designated bathing beaches is 235.

Comment [sep64]: EPA recommends a single sample maximum *E. coli* concentration of 575 for surface waters that are "infrequently used for full body contact recreation." ADEQ ... [1]

Comment [sep65]: Moved to Appendix A. Numeric Water Quality Standards table.

Comment [sep66]: ADEQ proposes to repeal the "maximum change due to discharge" criterion of 0.5 standard units because it is inconsistent with the pH criteria that are expressed as an all ... [2]

Comment [sep67]: Temperature criteria moved to R18-11-123(C).

Comment [sep68]: Moved to Appendix A. Numeric Water Quality Standards table. Suspended sediment concentration (SSC) criteria are expressed as chronic criteria for the ... [3]

Comment [sep69]: Dissolved oxygen criteria moved to Appendix A. (Numeric Water Quality Standards table). Subsection (E)(2) has been moved to the EDW rule, R18-11-113.

Sunset to three hours after sunrise	1.0
3. A surface water is in compliance with the water quality standard for dissolved oxygen if the percent saturation of dissolved oxygen is equal to or greater than 90%.	

- B. F. The following water quality standards for total phosphorus and total nitrogen, expressed in milligrams per liter (mg/L), shall not be exceeded:

	Annual mean	90th percentile	Single Sample Maximum
1. Verde River and its tributaries from headwaters to Bartlett Lake:			
Total phosphorus	0.10	0.30	1.00
Total nitrogen	1.00	1.50	3.00
2. Black River, Tonto Creek, and their tributaries that are not located on tribal lands:			
Total phosphorus	0.10	0.20	0.80
Total nitrogen	0.50	1.00	2.00
3. Salt River and its tributaries that are not located on tribal lands but not Pinal Creek above Theodore Roosevelt Lake:			
Total phosphorus	0.12	0.30	1.00
Total nitrogen	0.60	1.20	2.00
4. Theodore Roosevelt, Apache, Canyon, and Saguaro Lakes:			
Total phosphorus	0.03⁵	NNS	0.60⁶
Total nitrogen	0.30⁵	NNS	1.00⁶
5. Salt River below Stewart Mountain Dam to confluence with the Verde River:			
Total phosphorus	0.05	NNS	0.20
Total nitrogen	0.60	NNS	3.00
6. Little Colorado River and its tributaries above River Reservoir in Greer, South Fork of Little Colorado River above South Fork Campground, Water Canyon Creek above Apache-Sitgreaves National Forest boundary:			
Total phosphorus	0.08	0.10	0.75
Total nitrogen	0.60	0.75	1.10
7. Little Colorado River at the crossing of Apache County Road No. 124:			
Total phosphorus	NNS	NNS	0.75
Total nitrogen	NNS	NNS	1.80

Comment [sep70]: ADEQ proposes to repeal the nutrient criteria for the listed lakes. ADEQ proposes to replace the numeric nutrient criteria with the narrative nutrient standard implementation procedures for lakes and reservoirs prescribed in R18-11-108.03.

8. Little Colorado River above Lyman Lake to above the Amity Ditch diversion near crossing of Arizona Highway 273 (applies only when in-stream turbidity is less than 50 NTU):
- | | | | |
|------------------|------|------|------|
| Total phosphorus | 0.20 | 0.30 | 0.75 |
| Total nitrogen | 0.70 | 1.20 | 1.50 |
9. Colorado River, at Northern International Boundary near Morelos Dam:
- | | | | |
|------------------|-----|------|-----|
| Total phosphorus | NNS | 0.33 | NNS |
| Total nitrogen | NNS | 2.50 | NNS |
10. San Pedro River, from Curtis to Benson:
- | | | | |
|--------------------|-----|-----|-------|
| Total phosphorus | NNS | NNS | NNS |
| Total nitrate as N | NNS | NNS | 10.00 |
11. The discharge of wastewater to Show Low Creek and tributaries upstream of and including Fools Hollow Lake shall not exceed 0.16 mg/L total phosphates as P.
12. The discharge of wastewater to the San Francisco River and tributaries upstream of Luna Lake Dam shall not exceed 1.0 mg/L total phosphates as P.

- G. The following water quality standards for radiochemicals shall not be exceeded in surface waters with the domestic water source designated use:
1. The concentration of gross alpha particle activity, including radium 226, but excluding radon and uranium, shall not exceed 15 picocuries per liter of water.
 2. The concentration of combined radium-226 and radium-228 shall not exceed five picocuries per liter of water.
 - a. The concentration of strontium-90 shall not exceed eight picocuries per liter of water.
 - b. The concentration of tritium shall not exceed 20,000 picocuries per liter of water.
 - c. The average annual concentration of beta particle activity and photon emitters from manmade radionuclides shall not produce an annual dose equivalent to the total body or any internal organ greater than four millirems per year.

Comment [sep71]: Numeric criteria for radiochemicals to maintain and protect water quality for the DWS designated use are moved to Appendix A.

Footnotes:

⁺ Includes ALc, ALw, ALedw, and ALe.

² Does not apply to Cholla Lake.

³ Does not apply to a wastewater treatment plant discharge to a dry watercourse that creates an effluent dependent water or to a storm water discharge.

⁴ The dissolved oxygen water quality standard for a lake shall apply below the surface but not at a depth greater than one meter.

- ⁵ _____ Means the annual mean of representative composite samples taken from the surface and at two and five meter depths;
- ⁶ _____ Means the maximum for any set of representative composite samples taken from the surface and at two and five meter depths.

R18-11-110. Salinity of Standards for the Colorado River

- A. The flow-weighted average annual salinity in the lower main stem of the Colorado River shall be maintained at or below the following concentrations:

Location	Total Dissolved Solids
Below Hoover Dam	723 mg/L
Below Parker Dam	747 mg/L
At Imperial Dam	879 mg/L

- B. To preserve the basin-wide approach to salinity control developed by the Colorado River Basin states and to ensure compliance with the numeric criteria for salinity in subsection (A), the Department adopts the plan of implementation contained in the “1999 2002 Review, Water Quality Standards for Salinity, Colorado River System,” Colorado River Basin Salinity Control Forum, 106 West 500 South, Suite 101, Bountiful, Utah 84010-6232 (June, 1999 October, 2002), which is incorporated by reference and on file with the Office of the Secretary of State and the Department. This incorporation by reference contains no future editions or amendments.

Comment [sep72]: ADEQ updated this rule by incorporating the 2002 plan of implementation developed by the Colorado River Basin Salinity Control Forum.

R18-11-111 Analytical Methods

Comment [sep73]: No changes

- A. A person conducting an analysis of a sample taken to determine compliance with a water quality standard shall use an approved analytical method prescribed in 9 A.A.C. 14, Article 6, or an alternative analytical method that is approved by the Director of the Arizona Department of Health Services under R9-16-610(B).
- B. A test result from a sample taken to determine compliance with a water quality standard is valid only if the sample is analyzed by a laboratory that is licensed by the Arizona Department of Health Services for the analysis performed.

R18-11-112. Unique Water—Outstanding Arizona Waters

- A. The Director shall classify a surface water as a unique water Outstanding Arizona Water by rule. The Director shall consider nominations to classify a surface water as a unique water Outstanding Arizona Water only during the triennial review of water quality standards for surface waters.
- B. The Director may adopt, by rule, site-specific water quality standards to maintain and protect existing water quality in a unique water an Outstanding Arizona Water.
- C. Any person may nominate a surface water for classification as a unique an Outstanding Arizona Water by filing a nomination with the Department. The nomination to classify a surface water as a unique an Outstanding Arizona Water shall include:
1. A map and a description of the surface water;
 2. A written statement in support of the nomination, including specific reference to the applicable criteria for unique water classification prescribed in subsection (D);
 3. Supporting evidence demonstrating that the applicable unique water criteria prescribed in subsection (D) are met; and
 4. Available water quality data relevant to establishing baseline water quality of the proposed unique Outstanding Arizona Water.
- D. The Director may classify a surface water as a unique water upon finding that the surface water is an Outstanding Arizona Water based upon the following criteria:
1. The surface water is a perennial water;
 2. The surface water is in a free-flowing condition. For purposes of this subsection, “in a free-flowing condition” means that a surface water does not have an impoundment, diversion, channelization, rip-rapping or other bank armor, or another hydrological modification within the reach nominated for unique water Outstanding Arizona Water classification;
 3. The surface water has good water quality. For purposes of this subsection, “good water quality” means that the surface water has water quality that meets or exceeds is better than applicable surface water quality standards. A surface water that is listed as impaired under § 303(d) of the Clean Water Act [33 U.S.C. § 1313] is ineligible for unique waters Outstanding Arizona Water classification; and
 4. The surface water meets one or both of the following conditions:
 - a. The surface water is of exceptional recreational or ecological significance because of its unique attributes, including but not limited to, attributes related to the geology, flora, fauna, water quality, aesthetic values, or the wilderness characteristics of the surface water.

Comment [sep74]: ADEQ proposes to change the terminology from “unique waters” to “Outstanding Arizona Waters.” The latter term is more consistent with the terminology used in federal antidegradation policy relating to “outstanding national resource waters.”

- b. Threatened or endangered species are known to be associated with the surface water and the existing water quality is essential to the maintenance and propagation of a threatened or endangered species or the surface water provides critical habitat for a threatened or endangered species. Endangered or threatened species are identified in “Endangered and Threatened Wildlife and Plants,” 50 CFR § 17.11 and § 17.12 (revised as of October 1, 2000) which is incorporated by reference and on file with the Department and the Office of the Secretary of State. This incorporation by reference contains no future editions or amendments.

E. The following surface waters are classified as ~~unique waters~~ Outstanding Arizona Waters:

1. The West Fork of the Little Colorado River, above Government Springs;
2. Oak Creek, including the West Fork of Oak Creek; ~~from its headwaters to the Verde River;~~
3. Peeples Canyon Creek, tributary to the Santa Maria River; ~~from its headwaters to Burro Creek;~~
4. Burro Creek, ~~above its confluence with Boulder Creek~~ ~~from its headwaters to its confluence with~~ ~~Boulder Creek;~~
5. Francis Creek, ~~in Mohave and Yavapai counties~~ ~~from its headwaters to its confluence with Burro Creek;~~
6. Bonita Creek, ~~tributary to the upper Gila River~~ ~~from the boundary of the San Carlos Indian Reservation to the Gila River;~~
7. Cienega Creek, from confluence with Gardner Canyon and Spring Water Canyon at R18E T17S to USGS gaging station at 32°02'09" / 110°40'34", in Pima County;
8. Aravaipa Creek, from its confluence with Stowe Gulch to the downstream boundary of Aravaipa Canyon Wilderness Area;
9. Cave Creek and the South Fork of Cave Creek (Chiricahua Mountains), from the headwaters to the Coronado National Forest boundary;
10. Buehman Canyon Creek, from its headwaters (Lat. 32°24'55.5" N, Long. 110°39'43.5"W) to approximately 9.8 miles downstream (Lat. 32°24'31.5" N, Long. 10°32'08" W);
11. Lee Valley Creek, from its headwaters to Lee Valley Reservoir;
12. Bear Wallow Creek, from its headwaters to the boundary of the San Carlos Indian Reservation;
13. North Fork of Bear Wallow Creek, from its headwaters to Bear Wallow Creek;
14. South Fork of Bear Wallow Creek, from its headwaters to Bear Wallow Creek;
15. Snake Creek, from its headwaters to its confluence with Black River;
16. Hay Creek, from its headwaters to its confluence with the West Fork of the Black River;

Comment [sep75]: ADEQ is proposing to clarify which reaches of surface waters are classified as OAWs.

17. Stinky Creek, from the Fort Apache Indian Reservation boundary to its confluence with the West Fork of the Black River; and
 18. KP Creek, from its headwaters to its confluence with the Blue River.
- F. The Department shall hold at least one public meeting in the local area of a ~~nominated unique water surface water that is nominated for classification as an Outstanding Arizona Water~~ to solicit public comment on the nomination.
- G. The Director may consider the following factors when making a decision whether to classify a ~~nominated~~ surface water as ~~a unique water an Outstanding Arizona Water~~:
1. Whether there is the ability to manage the ~~unique surface~~ water and its watershed to maintain and protect existing water quality;
 2. The social and economic impact of Tier 3 antidegradation protection;
 3. The public comments in support or opposition to ~~a unique waters Outstanding Arizona Water classification~~;
 4. ~~The support or opposition of federal and state land management and natural resources agencies to a nomination;~~
 5. ~~Agency resource constraints;~~
 6. The timing of the ~~unique water~~ nomination relative to the triennial review of surface water quality standards;
 7. The consistency of ~~a unique water an Outstanding Arizona Water classification~~ with applicable water quality management plans (for example, § 208 water quality management plans); and
 8. Whether the nominated surface water is located within a national or state park, national monument, national recreation area, wilderness area, riparian conservation area, area of critical environmental concern, or it has another special use designation (for example, Wild and Scenic River designation).
- H. The following water quality standards apply to the listed ~~unique waters Outstanding Arizona Waters~~.

Water quality standards prescribed in this subsection supplement the water quality standards prescribed by this Article.

1. The West Fork of the Little Colorado River, above Government Springs:

Parameter	Standard
pH (standard units)	No change due to discharge
Temperature	No increase due to discharge
Dissolved oxygen	No decrease due to discharge

Comment [sep76]: ADEQ proposes to delete this factor because it is already covered by (G)(3).

Comment [sep77]: ADEQ proposes to repeal this factor. Agency resource constraints should not be considered when ADEQ makes a decision on an OAW nomination. OAW nominations should be considered on their merits.

Total dissolved solids	No increase due to discharge
Chromium (as Cr)(D)	10 $\mu\text{g/L}$
2. Oak Creek, including the West Fork of Oak Creek:	
Parameter	Standard
pH (standard units)	No change due to discharge
Nitrogen (T)	1.00 mg / L (annual mean) 1.50 mg / L (90th percentile) 2.50 mg / L (single sample max.)
Phosphorus (T)	0.10 mg/L (annual mean) 0.25 mg/L (90th percentile) 0.30 mg/ L (single sample max.)
Chromium (as Cr) (D)	5 $\mu\text{g/L}$
Turbidity change due to discharge	3 NTU ^s
3. Peeples Canyon Creek, tributary to from its headwaters to its confluence with the Santa Maria River:	
Parameter	Standard
Temperature	No increase due to discharge
Dissolved oxygen	No decrease due to discharge
Turbidity change due to discharge	5 NTU ^s
Arsenic (T)	20 $\mu\text{g/L}$
Manganese (T)	500 ug/L
4. Burro Creek, above its confluence with Boulder Creek:	
Parameter	Standard
Manganese (T)	500 ug/L
5. Francis Creek, in Mohave and Yavapai counties:	
Parameter	Standard
Manganese (T)	500 ug/L

Comment [sep78]: ADEQ is proposing new turbidity criteria that are expressed in terms of allowable changes from baseline conditions due to a point source or nonpoint source discharge. See R18-11-123(D) in this draft document.

Comment [sep79]: ADEQ is proposing new turbidity criteria that are expressed in terms of allowable changes from baseline conditions due to a point source or nonpoint source discharge. See R18-11-123(D) in this draft document

Comment [sep80]: ADEQ is proposing a new, more stringent arsenic criterion in Appendix A

5. Cienega Creek, from its confluence with Gardner Canyon and Spring Water Canyon at R18E T17S to Del Lago Dam, in Pima County:

Parameter	Standard
pH	No change due to discharge
Temperature	No increase due to discharge
Dissolved oxygen	No decrease due to discharge
Total dissolved solids	No increase due to discharge
Turbidity	10 NTUs

Comment [sep81]: ADEQ repealed state-adopted water quality criteria for turbidity and has adopted SSC criteria to protect aquatic life from the adverse effects of suspended sediment. ADEQ will rely on these “default” SSC criteria that apply to all surface waters to protect aquatic life in OAWs.

6. Bonita Creek, tributary to the Upper Gila River:

Parameter	Standard
pH	No change due to discharge
Temperature	No increase due to discharge
Dissolved oxygen	No decrease due to discharge
Total dissolved solids	No increase due to discharge
Turbidity	15 NTUs

Comment [sep82]: ADEQ repealed state-adopted water quality criteria for turbidity and has adopted SSC criteria to protect aquatic life from the adverse effects of suspended sediment. ADEQ will rely on these “default” SSC criteria that apply to all surface waters to protect aquatic life in OAWs.

Abbreviations:

“(D)” means dissolved fraction

“(T)” means total recoverable

“NTUs” means nephelometric turbidity units

“mg / L” means milligrams per liter

“ug / L” means micrograms per liter

R18-11-113. Effluent-Dependent Waters

- A. The Director shall classify a surface water as an effluent-dependent water by rule.
- B. The Director may adopt, by rule, site-specific water quality standards for an effluent-dependent water.
- C. Any person may submit a petition for rule adoption requesting that the Director classify a surface water as an effluent-dependent water. The petition for rule adoption shall include:
 1. A map and a description of the surface water,
 2. Information that demonstrates that the surface water consists of discharges of treated wastewater, and
 3. Information that demonstrates that the receiving water is an ephemeral water in the absence of the discharge of treated wastewater.

D. The following surface waters are classified as effluent dependent waters:

- 1. In the Colorado River Main Stem Basin:
 - a. Bright Angel Wash from the South Rim Grand Canyon WWTP outfall to its confluence with Coconino Wash,
 - b. Cataract Creek from the Williams WWTP outfall to one kilometer downstream from the outfall,
 - c. Holy Moses Wash from the Kingman WWTP outfall to three kilometers downstream from the outfall, and
 - d. Transect Canyon from the North Rim Grand Canyon WWTP outfall to one kilometer downstream from the outfall.
- 2. In the Little Colorado River Basin:
 - a. Dry Lake,
 - b. Lake Humphreys,
 - c. Lower Walnut Canyon Lake,
 - d. Ned Lake,
 - e. Pintail Lake,
 - f. Telephone Lake,
 - g. Rio de Flag from the City of Flagstaff WWTP outfall to its confluence with San Francisco Wash, and
 - h. Whale Lake.
- 3. In the Middle Gila River Basin:
 - a. Unnamed wash from the Town of Prescott Valley WWTP outfall to its confluence with the Agua Fria River, and the Agua Fria River below its confluence with the unnamed

Comment [sep83]: Treated wastewater includes effluent discharges from industrial facilities as well as municipal and domestic wastewater treatment plants.

Comment [sep84]: ADEQ has moved the list of EDWs from the body of R18-11-113 to Appendix B and C.

- wash receiving treated wastewater from the Prescott Valley WWTP to State Route 169; Agua Fria river from the El Mirage WWTP outfall to two kilometers downstream from the outfall;
- e. Gila River from the Florence WWTP outfall to Felix Road;
- d. Gila River from its confluence with the Salt River to Gillespie Dam;
- e. Queen Creek from the Town of Superior WWTP outfall to its confluence with Potts Canyon;
- f. Unnamed wash from the Gila Bend WWTP outfall to its confluence with the Gila River;
- g. Unnamed wash from the Luke AFB WWTP outfall to its confluence with the Agua Fria River; and
- h. Unnamed wash from the Queen Valley WWTP outfall to its confluence with Queen Creek.
4. In the Rios de Mexico Basin:
- a. Mule Gulch, from the Bisbee WWTP outfall to the Highway 80 bridge, and
- b. Unnamed wash from the Bisbee Douglas International Airport WWTP outfall to Whitewater Draw;
5. In the Salt River Basin:
- a. Unnamed wash from the Globe WWTP outfall to its confluence with Pinal Creek and Pinal Creek from its confluence with the unnamed wash to Radium, and
- b. Salt River from the 23rd Avenue WWTP outfall to its confluence with the Gila River.
6. In the San Pedro River Basin:
- a. Unnamed wash from the Mt. Lemmon WWTP outfall to 0.25 kilometers downstream, and
- b. Walnut Gulch from the Tombstone WWTP outfall to its confluence with Tombstone Gulch.

7. In the Santa Cruz Basin:
- Santa Cruz River from the Nogales International WWTP outfall to Tubac Bridge;
 - Santa Cruz River from the Roper Road WWTP outfall to Baumgartner Road crossing
 - Unnamed wash from the Oracle WWTP outfall to five kilometers downstream, and
 - Sonoita Creek from the Town of Patagonia WWTP outfall to 750 feet downstream.
8. In the Upper Gila River Basin:
- Bennett Wash from the Arizona Department of Corrections – Safford WWTP outfall to the Gila River and
 - Unnamed wash from the Arizona Department of Corrections – Globe WWTP outfall to the boundary of the San Carlos Indian Reservation.
9. In the Verde River Basin:
- American Gulch from the Northern Gila County Sanitary District WWTP outfall to the East Verde River;
 - Bitter Creek from the Jerome WWTP outfall to 2.5 kilometers downstream from the outfall, and
 - Jacks Canyon Wash from the Big Park WWTP outfall to its confluence with Dry Beaver Creek.
10. In the Willeox Playa Basin:
- Lake Cochise

D. The following are the water quality standards for dissolved oxygen, expressed in milligrams per liter (mg/L). The dissolved oxygen concentration in an effluent dependent water shall not fall below the following minimum concentrations:

Comment [sep85]: ADEQ moved the dissolved oxygen standards for EDWs to the EDW rule. It used to be in R18-11-109. ADEQ did not change DO criteria.

(Single sample minimum):	ALedw
Three hours after sunrise to sunset	3.0
Sunset to three hours after sunrise	1.0

An effluent dependent water is in compliance with the water quality standard for dissolved oxygen if the percent saturation of dissolved oxygen is equal to or greater than 90%.

- E. The NPDES permit issuing authority shall use the water quality standards that apply to an effluent-dependent water to derive discharge limitations for a point source discharge from a wastewater treatment plant to an ephemeral water that changes that ephemeral water into an effluent-dependent water.
- F. The site-specific standard of 36 ug / L for dissolved copper for the aquatic and wildlife (effluent-dependent water) designated use applies to the Rio de Flag from the City of Flagstaff WWTP outfall to its confluence with the San Francisco Wash .

R18-11-114. Mixing Zones

Comment [sep86]: No changes are proposed to the mixing zone rule.

- A. The Director may establish a mixing zone for a point source discharge to a surface water as a condition of a NPDES permit. Mixing zones are prohibited in ephemeral waters or where there is no water for dilution.
- B. The owner or operator of a point source seeking the establishment of a mixing zone shall submit a mixing zone application to the Department on a standard form that is available from the Department. The application shall include:
 - 1. Identification of the pollutant for which the mixing zone is requested;
 - 2. A proposed outfall design;
 - 3. A definition of the boundary of the proposed mixing zone. For purposes of this subsection, the boundary of a mixing zone means the location where the concentration of treated wastewater across a transect of the surface water differs by less than 5%; and
 - 4. A complete and detailed description of the existing physical, biological, and chemical conditions of the receiving water and the predicted impact of the proposed mixing zone on those conditions.
- C. The Department shall review the application for a mixing zone to determine whether the application is complete. If the application is incomplete, the Department shall identify in writing the additional information that must be submitted to the Department to complete the mixing zone application.
- D. The Director shall consider the following factors when deciding whether to grant or deny a request for a mixing zone:
 - 1. The assimilative capacity of the receiving water;
 - 2. The likelihood of adverse human health effects;
 - 3. The location of drinking water plant intakes and public swimming areas;
 - 4. The predicted exposure of biota and the likelihood that resident biota will be adversely affected;
 - 5. Bioaccumulation and bioconcentration;
 - 6. Whether there will be acute toxicity in the mixing zone, and, if so, the size of the area of acute toxicity;
 - 7. The known or predicted safe exposure levels for the pollutant of concern;
 - 8. The size of the mixing zone;
 - 9. The location of the mixing zone relative to biologically sensitive areas in the surface water;
 - 10. The concentration gradient of the pollutant within the mixing zone;
 - 11. Sediment deposition;
 - 12. The potential for attracting aquatic life to the mixing zone; and
 - 13. The cumulative impacts of other mixing zones and other discharges to the surface water.
- E. The Director shall deny the request to establish a mixing zone if water quality standards outside the boundaries of the proposed mixing zone will be violated. The denial of a request for a mixing zone shall be

in writing and shall state the reason for the denial. If the Director determines that a mixing zone should be established, the Director shall establish the mixing zone as a condition of a NPDES permit. The Director may include mixing zone conditions in the NPDES permit that the Director deems necessary to protect human health and the designated uses of the surface water.

- F. Any person who is adversely affected by the Director's decision to grant or deny a request for a mixing zone may appeal the decision to an administrative law judge under A.R.S. § 49-321 and A.R.S. §41-1092 et. seq.
- G. The Department shall reevaluate a mixing zone upon issuance, reissuance, or modification of the National Pollutant Discharge Elimination System permit for the point source or a modification of the outfall structure.
- H. The length of a mixing zone shall not exceed 500 meters in a stream. The total horizontal area allocated to all mixing zones on a lake shall not exceed 10% of the surface area of the lake. Adjacent mixing zones in a lake shall be no closer than the greatest horizontal dimension of any individual mixing zone.
- I. A mixing zone shall provide for a zone of passage of not less than 50% of the cross-sectional area of a river or stream.
- J. The discharge outfall shall be designed to maximize initial dilution of the treated wastewater in a surface water.
- K. A mixing zone is prohibited for the following persistent, bioaccumulative pollutants:
 1. Chlordane,
 2. DDT and its metabolites (DDD and DDE),
 3. Dieldrin,
 4. Dioxin,
 5. Endrin,
 6. Endrin aldehyde,
 7. Heptachlor,
 8. Heptachlor epoxide,
 9. Lindane,
 10. Mercury,
 11. PCBs, and
 12. Toxaphene.

R18-11-115. Nutrient Waivers Repealed

R18-11-116. Resource Management Agencies

Nothing in this Article shall be construed to prohibit fisheries management activities by the Arizona Game and Fish Department or the U.S. Fish and Wildlife Service. This provision does not exempt fish hatcheries from National Pollutant Discharge Elimination System permit requirements.

Comment [sep87]: No changes are being considered..

R18-11-117. Canals and Municipal Park Lakes

- A. Nothing in this Article shall be construed to prevent the routine physical or mechanical maintenance of canals, drains, and the municipal park lakes identified in Appendix B. Physical or mechanical maintenance includes de-watering, lining, dredging, and the physical, biological, or chemical control of weeds and algae. Increases in turbidity that result from physical or mechanical maintenance activities are permitted in canals, drains, and the municipal park lakes identified in Appendix B.
- B. The discharge of lubricating oil that is associated with the start-up of well pumps which discharge to canals is not a violation of R18-11-108(B).

Comment [sep88]: No changes are being considered.

R18-11-118. Dams and Flood Control Structures

- A. Increases in turbidity that result from the routine physical or mechanical maintenance of a dam or flood control structure are not violations of this Article.
- B. Nothing in this Article shall be construed to require the release of water from a dam or a flood control structure.

Comment [sep89]: No changes are being considered to this rule.

R18-11-119. Natural Background

Where the concentration of a pollutant exceeds a water quality standard and the exceedance is not caused by human activity but is due solely to naturally-occurring conditions, the exceedance shall not be considered a violation of the water quality standard.

Comment [sep90]: No changes are being considered.

R18-11-120. Enforcement

- A. Any person who causes a violation of a water quality standard or any provision of this Article is subject to the enforcement provisions in A.R.S. Title 49, Chapter 2, Article 4.
- B. The Department may establish a numeric water quality standard at a concentration that is below the practical quantitation limit. In such cases, the water quality standard is enforceable at the practical quantitation limit.
- C. The Department shall determine compliance with acute aquatic ~~and wildlife~~ life criteria from the analytical result of a grab sample. Compliance with chronic aquatic ~~and wildlife~~ life criteria shall be determined from the geometric mean of the analytical results of the last four samples taken at least 24 hours apart.
- D. A person is not subject to penalties for violation of a water quality standard provided that the person is in compliance with the provisions of a compliance schedule issued under R18-11-121.

R18-11-121. Schedules of Compliance

- A. A schedule to bring an existing point source into compliance with a new or revised water quality standard may be established in a National an Arizona Pollutant Discharge Elimination System permit for an existing point source. A compliance schedule for an existing point source, other than a storm water discharge, shall require compliance with a discharge limitation based upon a new or revised water quality standard no later than three years after the effective date of the National Arizona Pollutant Discharge Elimination System permit. For a schedule of compliance to be granted, the owner or operator of the existing point source shall demonstrate that all requirements under §301(b) and §306 of the Clean Water Act [33 U.S.C. §1311(b) and §1316] have been achieved and that the point source cannot comply with a discharge limitation based upon the new or revised water quality standard through the application of existing water pollution control technology, operational changes, or source reduction.
- B. A schedule of compliance may be established in a National an Arizona Pollutant Discharge Elimination System permit for a new point source. The first National Arizona Pollutant Discharge Elimination System permit issued to a new point source may contain a schedule of compliance only when necessary to allow a reasonable opportunity to attain compliance with a new or revised water quality standard that becomes effective after commencement of construction but less than three years before commencement of the discharge. For purposes of this subsection, commencement of construction means that the owner or operator of the point source has obtained the federal, state, and local approvals or permits necessary to begin physical construction of the point source and either:
 - 1. On-site physical construction program has begun; or
 - 2. The owner or operator has entered into a contract for physical construction of the point source and the contract cannot be cancelled or modified without substantial loss. For purposes of this subsection, “substantial loss” means in excess of 10% of the total cost incurred for physical construction.
- C. A schedule of compliance may be established in a National an Arizona Pollutant Discharge Elimination System permit for a recommencing point source discharge. The first National Arizona Pollutant Discharge Elimination System permit issued to a recommencing point source discharge may contain a schedule of compliance only when necessary to allow a reasonable opportunity to attain compliance with a new or revised water quality standard that becomes effective less than three years before recommencement of discharge.

- D. A schedule to bring a point source discharge of storm water into compliance with a water quality standard may be established in ~~a National~~ ~~an Arizona~~ Pollutant Discharge Elimination System permit. A compliance schedule for a storm water discharge shall require implementation of all reasonable and cost-effective best management practices to control the discharge of pollutants in storm water.

R18-11-122. Variances

- A. The Director may grant a variance from a water quality standard for a point source discharge if the discharger demonstrates that treatment more advanced than that required to comply with technology-based effluent limitations is necessary to comply with the water quality standard and:
 - 1. It is not technically feasible to achieve compliance within the next five years,
 - 2. The cost of the treatment would result in substantial and widespread economic and social impact, or
 - 3. Human-caused conditions or sources of pollution prevent attainment of the water quality standard and cannot be remedied within the next five years.
- B. A variance may be granted only on a pollutant-specific basis. A point source discharge is required to comply with all other applicable water quality standards for which a variance is not granted.
- C. A variance applies only to a specific point source discharge. The granting of a variance does not modify a water quality standard. Other point source dischargers to the surface water shall comply with applicable water quality standards, including any water quality standard for which a variance has been granted for a specific point source discharge.
- D. A variance is for a fixed term not to exceed five years. Upon expiration of a variance, a point source discharger shall either comply with the water quality standard or apply for renewal of the variance. To renew a variance, the applicant shall demonstrate reasonable progress towards compliance with the water quality standard during the term of the variance.
- E. The Department shall reevaluate a variance upon the issuance, reissuance, or modification of the National
Arizona Pollutant Discharge Elimination System permit for the point source discharge.
- F. A person who seeks a variance from a water quality standard shall submit a written request for a variance to the Department. A request for a variance shall include the following information:
 - 1. Identification of the specific pollutant and water quality standard for which a variance is sought;
 - 2. Identification of the receiving surface water;
 - 3. For an existing point source discharge, a detailed description of the existing discharge control technologies that are used to achieve compliance with applicable water quality standards. For a new point source discharge, a detailed description of the proposed discharge control technologies that will be used to achieve compliance with applicable water quality standards;
 - 4. Documentation that the existing or proposed discharge control technologies will comply with applicable technology-based effluent limitations and that more advanced treatment technology is necessary to achieve compliance with the water quality standard for which a variance is sought;

5. A detailed discussion of the reasons why compliance with the water quality standard cannot be achieved;
 6. A detailed discussion of the discharge control technologies that are available for achieving compliance with the water quality standard for which a variance is sought;
 7. Documentation of one of the following:
 - a. That it is not technically feasible to install and operate any of the available discharge control technologies to achieve compliance with the water quality standard for which a variance is sought,
 - b. That installation and operation of each of the available discharge technologies to achieve compliance with the water quality standard would result in substantial and widespread economic and social impact, or
 - c. That human-caused conditions or sources of pollution prevent the attainment of the water quality standard for which the variance is sought and it is not possible to remedy the conditions or sources of pollution within the next five years.
 8. Documentation that the point source discharger has reduced, to the maximum extent practicable, the discharge of the pollutant for which a variance is sought through implementation of a local pretreatment, source reduction, or waste minimization program, and
 9. A detailed description of proposed interim discharge limitations that represent the highest level of treatment achievable by the point source discharger during the term of the variance. Interim discharge limitations shall not be less stringent than technology-based effluent limitations.
- G. In making a decision on whether to grant or deny the request for a variance, the Director shall consider the following factors:
1. Bioaccumulation and bioconcentration,
 2. The predicted exposure of biota and the likelihood that resident biota will be adversely affected,
 3. The known or predicted safe exposure levels for the pollutant of concern, and
 4. The likelihood of adverse human health effects.
- H. The Department shall issue a public notice and shall provide an opportunity for a public hearing on whether the request for a variance should be granted or denied under procedures prescribed in R18-1-401 and R18-1-402.
- I. Any person who is adversely affected by a decision of the Director to grant or deny a variance may appeal the decision to an administrative law judge under A.R.S. §49-321 and A.R.S. §41-1092 et.seq.
- J. The Department shall not grant a variance for a point source discharge to a ~~unique water~~ Outstanding Arizona Water listed in R18-11-112.

Comment [sep91]: This change is to conform to the proposed change from "unique water" to "Outstanding Arizona Water."

- K. A variance is subject to review and approval by the Regional Administrator of the U.S. Environmental Protection Agency.

R18-11-123. Prohibition Against Limits on Discharge

- A. The discharge of treated wastewater to Sabino Creek is prohibited.
- B. The discharge of human body wastes and the wastes from toilets and other receptacles intended to receive or retain those wastes on a vessel to Lake Powell is prohibited.

C. The following maximum allowable increase in ambient water temperature expressed in degrees Celsius due to a thermal discharge shall not be exceeded:

Comment [sep92]: This limit on thermal discharges was moved (without change) from R18-11-109.

<u>Temperature</u>	<u>ALw, ALedw</u>	<u>ALc</u>
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Maximum increase

due to a thermal discharge 3.0 1.0

D. The following maximum allowable increase in turbidity due to a discharge, expressed in nephelometric turbidity units (NTUs), shall not be exceeded:

1. Where the background turbidity is 50 NTUs or less, turbidity may not be increased by a discharge more than 5 NTUs above the background turbidity level at a compliance point established under subsection 3.

2. Where the background turbidity is greater than 50 NTUs, turbidity may not be increased by a discharge more than 10% above the background turbidity level at a compliance point established under subsection 3.

3. Compliance points:

a. For streams: The compliance point is between 50 feet and 100 downstream of the point of discharge to the surface water.

b. For lakes and reservoirs: The compliance point is within a 50 and 100 feet radius of the point of discharge.

Comment [sep93]: ADEQ is proposing a new criterion to limit turbidity-causing discharges. The proposed limit on the maximum allowable increase in turbidity due to a discharge over background turbidity is intended to provide a practical regulatory tool to control erosion and other point and nonpoint discharges of sediment to Arizona streams and lakes. The draft numeric limits on increases in turbidity due to discharge are based largely on research conducted by the Oregon Department of Environmental Quality. The Oregon DEQ also is engaged in revising their turbidity water quality standards. ADEQ proposes to use the technical basis for revising Oregon's turbidity criteria to support ADEQ new rule limiting turbidity discharges. See *Technical Basis for Draft Turbidity Criteria Rule* (October, 2003) by the Oregon DEQ.

NOTES ON REVISIONS TO APPENDIX A. NUMERIC WATER QUALITY STANDARDS

The following pages contain Appendix A; Numeric Water Quality Standards. A new table includes proposed revisions to Arizona's numeric water quality standards. Proposed revisions to the list of parameters and numeric water quality criteria are indicated by gray highlighting.

If ADEQ is proposing criteria for a new pollutant or a pollutant has been moved to the table from another location in the rules, the name of the pollutant is highlighted in the column entitled "Parameter." For example, Alpha Particles was moved from R18-11-109 and added to the table in Appendix. Other pollutants added to Appendix A because they were moved from other sections of the water quality standards rules and indicated by gray highlighting include: beta particles and photon emitters, dissolved oxygen, pH, radium-226 + radium-228, suspended sediment concentration,

Some pollutants indicated by grey highlighting are new pollutants that were previously unregulated have been added to Appendix A. These include chlorpyrofos, ethylene dibromide, guthion, hydrogen sulfide, iron, malathion, methyl mercury, mirex, parathion, paraquat, permethrin, selenate, selenite, and tributyltin.

The current water quality standards have two separate tables. One table contains water quality criteria to protect human health and agricultural uses (DWS, FC, FBC, PBC AgI, and AgL). The other table contains acute and chronic water quality criteria to protect aquatic life designated uses (A&Wc, A&Ww, A&Wedw, and A&We). ADEQ is proposing to consolidate these two tables into a single table of numeric water quality criteria for ease of reference and comparison.

Changes to numeric criteria from current water quality criteria also are indicated by gray highlighting. The gray highlighting indicates new numeric criteria or revisions to existing criteria.

Numeric criteria were derived using the following methods, risk assessment factors and exposure assumptions:

- All numeric criteria to protect human health are based on an estimation of risk posed by an individual pollutant and estimated exposure rates and body weights based on national averages.
- ADEQ used reference doses (Rfds) to calculate numeric criteria for non-carcinogenic pollutants. Reference doses are an estimate of a daily oral exposure to a human population that is likely to be without an appreciable non-cancer risk during a lifetime. Rfds used in criteria derivation methodologies were obtained from EPA's Integrated Risk Information System (IRIS) database.

- Oral cancer slope factors (OCSFs) were used to calculate numeric water quality criteria for carcinogens. The OCSF is a quantitative estimate of carcinogenic risk from oral exposure to a pollutant over a lifetime of exposure presented as the risk per milligram per kilogram per day (mg/kg/day). OCSFs for carcinogenic pollutants were obtained from EPA's IRIS database.
- The excess cancer risk level (i.e., the maximum acceptable individual lifetime risk level of cancer) used to calculate criteria for carcinogens was set at one in a million (10^{-6}).
- For the DWS designated use: ADEQ adopted maximum contaminant levels (MCLs) where available as numeric water quality criteria to maintain and protect water quality for the DWS designated use. Where MCLs were not available, ADEQ derived numeric criteria for the DWS designated use using EPA criteria derivation methodologies for carcinogens and non-carcinogens. Criteria for DWS were determined using a default water consumption rate of 2 liters per day, a default adult body weight of 70 kg, and either an oral cancer slope factor (OCSF) for a carcinogenic pollutant or a reference dose (Rfd) for a noncarcinogen. ADEQ also used a relative source contribution factor of 0.20 (20%) to calculate DWS criteria for non-carcinogens to account for other daily exposures to toxic pollutants (e.g., dietary exposure, workplace exposure, inhalation exposures, etc.). The following equations were used to calculate numeric criteria for the DWS designated use:

For carcinogens:
$$\frac{70 \text{ kg} * 10^{-6}}{\text{OCSF} * 2 \text{ L / day}}$$

For noncarcinogens:
$$\frac{\text{Rfd} * 0.20 * 70 \text{ kg}}{2 \text{ L / day}}$$

- For the FC designated use: ADEQ proposes to adopt fish tissue criteria for 17 highly bioaccumulative pollutants instead of numeric water quality criteria that apply in the water column. Fish tissue criteria are indicated as an “FT” in the FC column in Appendix A. Fish tissue criteria are listed in a separate table which follows Appendix A. ADEQ retained water quality criteria for all other pollutants where ADEQ did not develop a fish tissue criterion. Water quality criteria for the FC designated use were re-calculated using a national average fish consumption rate of 17.5 grams per day, an adult body weight of 70 kg, and either an oral cancer slope factor for carcinogens or an Rfd for non-carcinogens. Because many toxic pollutants bioaccumulate in the tissues of fish and other aquatic organisms to a higher level than that found in the water column, ADEQ also applied a bioconcentration factor (BCF) in the calculation to derive numeric criteria that take this build-up in tissue into account. Finally, ADEQ applied a relative source contribution factor of 0.20 (20%) for noncarcinogens to account for other exposure pathways. The following equations were used to calculate numeric water quality criteria for the FC designated use:

For carcinogens:
$$\frac{70 \text{ kg} * 10^6}{\text{OCSF} * 17.5 \text{ grams / day} * \text{BCF}}$$

For noncarcinogens:
$$\frac{\text{Rfd} * 0.20 * 70 \text{ kg}}{17.5 \text{ grams / day} * \text{BCF}}$$

- For the FBC designated use: ADEQ derived numeric criteria to protect the FBC designated use using a water ingestion rate of 50 milliliters per day, an adult body weight of 70 kg, and either an OCSF for carcinogens or a Rfd for a noncarcinogen. Where the calculated criterion for the FBC designated use was more stringent than the DWS criterion for the same pollutant, ADEQ used the DWS criterion to protect the FBC use. (This result occurred when ADEQ adopted an MCL for the DWS designated use). The following equations were used to derive criteria for the FBC designated use:

For carcinogens:
$$\frac{70 \text{ kg} * 10^6}{\text{OCSF} * 50 \text{ ml / day}}$$

For noncarcinogens:
$$\frac{\text{Rfd} * 0.20 * 70 \text{ kg}}{50 \text{ ml / day}}$$

- For the PBC designated use: ADEQ derived numeric criteria to protect the PBC designated use using the same water ingestion rate of 50 milliliters per day as was used for FBC and an adult body weight of 70 kg and the Rfd for the individual pollutant. Because the PBC designated use assumes only short-term, episodic exposures rather than long-term exposures, ADEQ did not use oral cancer slope factors to calculate PBC criteria. For three pollutants for which there is no Rfd in EPA's IRIS database, are highly bioaccumulable, and which present a high risk to young children and developing fetuses, ADEQ used the following risk estimations in lieu of an Rfd: 1) Mercury – ADEQ used the Rfd for mercuric chloride as a surrogate Rfd, 2) Polychlorinated biphenyls (PCBs) – ADEQ used the Rfd for the Aroclor 1254 (a major PCB constituent) as a surrogate Rfd, and 3) Dioxin – ADEQ used a Minimum Risk Level published by the Agency for Toxic Substances and Disease Registry as a surrogate Rfd. ADEQ used the following equation to derive numeric criteria for the PBC designated use:

$$\frac{\text{Rfd} * 0.20 * 70 \text{ kg}}{50 \text{ ml / day}}$$

- ADEQ adopted new criteria or updated existing criteria to protect aquatic life to be consistent with EPA §304(a) national criteria recommendations to protect freshwater aquatic life. Revised aquatic life criteria for this reason are for aldrin, arsenic, chlorine, dieldrin, endosulfan, endosulfan sulfate, endrin, guthion, lindane, and methoxychlor.
- In some cases, ADEQ revised existing aquatic life criteria by rounding existing criteria. Revisions to aquatic life criteria because of rounding include revised aquatic life criteria for beryllium, chlordane, cyanide, p-chloro-m-cresol, 2,4-dinitrophenol, heptachlor, heptachlor epoxide, hexachlorobenzene, hexachlorobutadiene, and phenanthrene.
- ADEQ is considering adoption of aquatic life criteria for pollutants that were previously unregulated. New aquatic life criteria for these pollutants are based on EPA §304(a) national criteria recommendations. The: guthion, hydrogen sulfide, iron, malathion, mirex, parathion, paraquat, permethrin, selenate, selenite, and tributyltin.
- ADEQ is proposing to adopt numeric ammonia criteria for effluent dependent waters. ADEQ attempted to re-calculate the ammonia criteria using representative species from EDWs, but found that the same sensitive species that vulnerable to ammonia toxicity are present in both effluent dependent waters and warm water systems. For this reason, the A&Ww and A&Wedw ammonia criteria are essentially the same.

- ADEQ amended the tables for hardness-dependent parameters to include hardness values from 1-25. This change is consistent with current EPA §304(a) criteria recommendations. In the past, EPA recommended that when the hardness of a surface water was less than 25 mg/L, the concentration of the hardness-dependent parameter be calculated as if the hardness is 25 mg/L. EPA has evaluated the available toxicity data in this range (i.e. < 25 mg / L) for hardness-dependent parameters and has concluded that capping hardness at 25 mg / L without additional data or justification may result in criteria that provide less protection than that intended by EPA's *Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses* (EPA 822 / R-85-100). EPA now recommends that hardness not be capped at 25 mg / L, or any other hardness on the low end. ADEQ amended the tables to be consistent with this recommendation.

Appendix A. Numeric Water Quality Standards

PARAMETER	CAS NUMBER	DWS (ug/L)	FC (ug/L)	FBC (ug/L)	PBC (ug/L)	ALc Acute (ug/L)	ALc Chronic (ug/L)	ALw Acute (ug/L)	ALw Chronic (ug/L)	ALedw Acute (ug/L)	ALedw Chronic (ug/L)	ALe Acute (ug/L)	AgI (ug/L)	AgL (ug/L)
Acenaphthene (PP)	83329	420	200	16,800	16,800	850	550	850	550	850	550	850		
Acrolein (PP)	107028	4	2	140	140	34	30	34	30	34	30	34		
Acrylonitrile (PP)	107131	0.06	0.2	3		3,800	250	3,800	250	3,800	250	3,800		
Alachlor (MCL)	15972608	2		2,800	2,800	2,500	170	2,500	170	2,500	170	2,500		
Aldrin (PP)	309002	0.002	FT	0.08	8	3		3		3		3	4.5	
Alpha Particles (MCL)		15 pCi / L												
Ammonia (NPP)	7664417					pH & temp dep.	pH & temp dep.	pH & temp dep.	pH & temp dep.	pH & temp dep.	pH & temp dep.			
Anthracene (PP)	120127	2,100	74	84,000	84,000									
Antimony (PP) + (MCL)	7440360	6 (T)	320	110	110	88 D	30 D	88 D	30 D	1,000 D	600 D			
Arsenic (PP) + (MCL)	7440382	10 (T)	80	10	85	340 D	150 D	340 D	150 D	340 D	150 D	440 D	2,000T	200 T
Asbestos (PP) + (MCL)	1332214	7 mfl		7 mfl	7mfl									
Atrazine (MCL)	1912249	3		9,800	9,800									
Barium (NPP) + (MCL)	7440393	2.000 (T)		2,000	2,000									
Benzene (PP) + (MCL)	71432	5	115	40	1,120	2,700	180	2,700	180	8,800	560			
Benzidine (PP)	92875	0.0002	0.0002	0.01	840	1,300	89	1,300	89	1,300	89	10,000	0.01	0.01

PARAMETER	CAS NUMBER	DWS (ug/L)	FC (ug/L)	FBC (ug/L)	PBC (ug/L)	ALc Acute (ug/L)	ALc Chronic (ug/L)	ALw Acute (ug/L)	ALw Chronic (ug/L)	ALedw Acute (ug/L)	ALedw Chronic (ug/L)	ALe Acute (ug/L)	AgI (ug/L)	AgL (ug/L)
Benz(a)anthracene (PP)	56553	0.005	0.02	0.2										
Benzo(a)pyrene (PP) + (MCL)	50328	0.2	0.02	0.2										
Benzo(k)fluoranthene (PP)	207089	0.005	0.02	0.2										
Beryllium (PP) + (MCL)	7440417	4 T	85	560	560	65 D	5 D	65 D	5 D	65 D	5 D			
Beta particles and photon emitters (MCL)		4 millirems / year												
Bis(chloroethyl) ether (PP)	111444	0.03	0.5	1		120,000	6,700	120,000	6,700	120,000	6,700			
Boron (NPP)	7440428	1,400 T		56,000	56,000							1,000T		
Bromodichloromethane	75274	TTHM	17	TTHM	5,600									
p-Bromodiphenyl ether (PP)	101553					180	14	180	14	180	14			
Bromoform (PP)	75252	TTHM	135	TTHM	5,600	15,000	10,000	15,000	10,000	15,000	10,000			
Bromomethane	74839	10	300	390	390	5,500	360	5,500	360	5,500	360			
Butyl benzyl phthalate (PP)	85687	1,400	390	56,000	56,000	1,700	130	1,700	130	1,700	130			
Cadmium (PP) + (MCL)	7440439	5 (T)	FT	140	140	HD (c)	HD (c)	HD (c)	HD (c)	HD (c)	HD (c)	HD (c)	50	50
Carbofuran (MCL)	1563662	40		1,400	1,400	650	50	650	50	650	50			

PARAMETER	CAS NUMBER	DWS (ug/L)	FC (ug/L)	FBC (ug/L)	PBC (ug/L)	ALc Acute (ug/L)	ALc Chronic (ug/L)	ALw Acute (ug/L)	ALw Chronic (ug/L)	ALedw Acute (ug/L)	ALedw Chronic (ug/L)	ALe Acute (ug/L)	AgI (ug/L)	AgL (ug/L)
Carbon tetrachloride (MCL)	56235	5	2	11	200	18,000	1,100	18,000	1,100	18,000	1,100			
Chlordane (PP) + (MCL)	57749	2	FT	4	140	2.4	0.004	2.4	0.2	2.4	0.2	3.2		
Chlorine (total residual) (NPP)	7782505	700		28,000	28,000	19	11	19	11	19	11			
Chlorobenzene (PP) + (MCL)	108907	100	1,550	5,600	5,600	3,800	260	3,800	260	3,800	260			
p-Chloro-m-cresol (PP)	59507					15	5	15	5	15	5	48,000		
2-Chloroethyl vinyl ether (PP)	110758					180,000	9,800	180,000	9,800	180,000	9,800			
Chloroform (PP)	67663	TTHM	2,130	TTHM	2,800	14,000	900	14,000	900	14,000	900			
Chloromethane	78873					270,000	15,000	270,000	15,000	270,000	15,000			
2-Chloronaphthalene (PP)	91587	560	320	22,400	22,400									
2-Chlorophenol (PP)	95578	35	30	1,400	1,400	2,200	150	2,200	150	2,200	150			
Chlorpyrofos		21		840	840									
Chromium III (PP)	16065831	10,500	75,000	420,000	420,000	HD (d)	HD (d)	HD (d)	HD (d)	HD (d)	HD (d)			
Chromium VI (PP)	18540299	21 T	150	840	840	16 D	11 D	16 D	11 D	16 D	11 D	34 D		
Chromium (Total) (MCL)	7440473	100		100	100							1,000 T	1,000 T	
Chrysene (PP)	218019	0.005	0.02	0.2										

PARAMETER	CAS NUMBER	DWS	FC	FBC	PBC	ALc Acute (ug/L)	ALc Chronic (ug/L)	ALw Acute (ug/L)	ALw Chronic (ug/L)	ALedw Acute (ug/L)	ALedw Chronic (ug/L)	ALe Acute (ug/L)	AgI (ug/L)	AgL (ug/L)
Copper (as Cu) (PP) + (TT)	7440508	1,300 T		1,300	1,300	HD (e)	HD (e)	HD (e)	HD (e)	HD (e)	HD (e)	HD (e)	5,000T	500 T
Cyanide (as free cyanide) (PP) + (MCL)	57125	200	16,000	5,600	5,600	22 T	5 T	41 T	10 T	41 T	10 T	84 T		200 T
Dalapon (MCL)	75990	200												
Dibenz (ah) anthracene (PP)	53703	0.005	0.02	0.2										
Dibromochloromethane (PP)	124481	TTHM	13	TTHM	5,600									
1,2-Dibromo-3-chloropropane (DBCP) (MCL)	96128	0.2		0.2	0.2									
1,2-Dibromoethane (EDB) (MCL)	106934	0.05		2,520	2,520									
Di-n-butyl phthalate (PP)	84742	700	900	28,000	28,000	470	35	470	35	470	35	1100		
1,2-Dichlorobenzene (PP)+MCL	95501	600	210	25,200	25,200	790	300	1,200	470	1,200	470	5,900		
1,3-Dichlorobenzene (PP)	541731					2,500	970	2,500	970	2,500	970			
1,4-Dichlorobenzene (PP)+ (MCL)	106467	75		75	75	560	210	2,000	780	2,000	780	6,500		
3,3'-Dichlorobenzidine (PP)	91941	0.08	0.03	3										

PARAMETER	CAS NUMBER	DWS (ug/L)	FC (ug/L)	FBC (ug/L)	PBC (ug/L)	ALc Acute (ug/L)	ALc Chronic (ug/L)	ALw Acute (ug/L)	ALw Chronic (ug/L)	ALedw Acute (ug/L)	ALedw Chronic (ug/L)	ALe Acute (ug/L)	AgI (ug/L)	AgL (ug/L)
p,p'-Dichlorodiphenyltrichloroethane (DDT) and metabolites (DDD) and (DDE) (PP)	50293	0.1	FT	4	140	1.1	0.001	1.1	0.001	1.1	0.001	1.1	0.001	0.001
1,2-Dichloroethane (PP)+(MCL)	107062	5	37	5	5	59,000	41,000	59,000	41,000	59,000	41,000			
1,1-Dichloroethylene (PP)+(MCL)	75354	7	7,140	14,000	14,000	15,000	950	15,000	950	15,000	950			
1,2-cis-Dichloroethylene (MCL)	156592	70		70	70									
1,2-trans-Dichloroethylene (PP) + (MCL)	156605	100	10,130	5,600	5,600	68,000	3,900	68,000	3,900	68,000	3,900			
Dichloromethane (MCL)	75092	5	590	190	16,800	97,000	5,500	97,000	5,500	97,000	5,500			
2,4-Dichlorophenol (PP)	120832	21	60	840	840	1,000	88	1,000	88	1,000	88			
2,4-Dichlorophenoxyacetic acid (2,4-D) (NPP)	94757	70		2,800	2,800									
1,2-Dichloropropane (PP) (MCL)	78875	5		5	5	26,000	9,200	26,000	9,200	26,000	9,200			
1,3-Dichloropropene (PP)	542756	0.7	42	28	8,400	3,000	1,100	3,000	1,100	3,000	1,100			
Dieldrin (PP)	60571	0.002	FT	0.09	14	0.2	0.06	0.2	0.06	0.2	0.06	4		
Diethyl phthalate (PP)	84662	5,600	8,770	224,000	224,000	26,000	1,600	26,000	1,600	26,000	1,600			

PARAMETER	CAS NUMBER	DWS (ug/L)	FC (ug/L)	FBC (ug/L)	PBC (ug/L)	ALc Acute (ug/L)	ALc Chronic (ug/L)	ALw Acute (ug/L)	ALw Chronic (ug/L)	ALedw Acute (ug/L)	ALedw Chronic (ug/L)	ALe Acute (ug/L)	AgI (ug/L)	AgL (ug/L)
Di (2-ethylhexyl) adipate (MCL)	103231	400												
Di (2-ethylhexyl) phthalate (PP) (MCL)	117817	6	3	100	5,600	400	360	400	360	400	360	3,100		
2,4-Dimethylphenol (PP)	105679	140	170	5,600	5,600	1,000	310	1,000	310	1,000	310	150,000		
Dimethyl phthalate (PP)	131113					17,000	1,000	17,000	1,000	17,000	1,000			
4,6-Dinitro-o-cresol (PP)	534521					310	24	310	24	310	24			
2,4-Dinitrophenol (PP)	51285	14	1,070	560	560	110	9	110	9	110	9			
2,4-Dinitrotoluene (PP)	121142	14	420	560	560	14,000	860	14,000	860	14,000	860			
2,6-Dinitrotoluene (PP)	606202	0.05		2										
Dinoseb (MCL)	88857	7												
1,2-Diphenylhydrazine (PP)	122667	0.04	0.2	2		130	11	130	11	130	11			
Diquat (MCL)	85007	20		620	620									
Dissolved oxygen (NPP)						7.0		6.0			*			
Endosulfan sulfate (PP)	1031078	42	FT	1,680	1,680	0.2	0.06	0.2	0.06	0.2	0.06	3		
Endosulfan (Total) (PP)	115297	42	FT			0.2	0.06	0.2	0.06	0.2	0.06	3		
Endothall (MCL)	145733	100		5,600	5,600									
Endrin (PP) (MCL)	72208	2	FT	84	84	0.09	0.04	0.09	0.04	0.09	0.04	0.7	0.004	0.004

PARAMETER	CAS NUMBER	DWS (ug/L)	FC (ug/L)	FBC (ug/L)	PBC (ug/L)	ALc Acute (ug/L)	ALc Chronic (ug/L)	ALw Acute (ug/L)	ALw Chronic (ug/L)	ALedw Acute (ug/L)	ALedw Chronic (ug/L)	ALE Acute (ug/L)	AgI (ug/L)	AgL (ug/L)
Endrin aldehyde (PP)	7421933					0.09	0.04	0.09	0.04	0.09	0.04	0.7		
Ethylbenzene (PP) (MCL)	100414	700	2,130	28,000	28,000	23,000	1,400	23,000	1,400	23,000	1,400			
Ethylene dibromide (MCL)		0.05												
Fluoranthene (PP)	206440	280	28	11,200	11,200	2,000	1,600	2,000	1,600	2,000	1,600			
Fluorene (PP)	86737	280	1,070	11,200	11,200									
Fluoride (MCL)	7782414	4,000		16,800	16,800									
Glyphosate (MCL)	1071836	700		28,000	28,000									
Guthion	86500						0.01			0.01		0.01		
Heptachlor (PP)	76448	0.4	FT	0.4	140	0.5	0.004	0.5	0.004	0.6	0.01	0.9		
Heptachlor epoxide (PP)	1024573	0.2	FT	0.2	4	0.5	0.004	0.5	0.004	0.6	0.01	0.9		
Hexachlorobenzene (PP)	118741	1	0.0003	1	225	6	4	6	4	6	4			
Hexachlorobutadiene (PP)	87683	0.4	18	18		45	8	45	8	45	8			
Hexachlorocyclohexane alpha (PP)	319846	0.006	0.005	0.2		1,600	130	1,600	130	1,600	130	1,600		
Hexachlorocyclohexane beta (PP)	319857	0.02	0.02	0.8		1,600	130	1,600	130	1,600	130	1,600		
Hexachlorocyclohexane delta (NPP)	319868					1,600	130	1,600	130	1,600	130	1,600		

PARAMETER	CAS NUMBER	DWS (ug/L)	FC (ug/L)	FBC (ug/L)	PBC (ug/L)	ALc Acute (ug/L)	ALc Chronic (ug/L)	ALw Acute (ug/L)	ALw Chronic (ug/L)	ALedw Acute (ug/L)	ALedw Chronic (ug/L)	ALE Acute (ug/L)	AgI (ug/L)	AgL (ug/L)
Hexachlorocyclohexane gamma (lindane) (PP)	58899	0.2	FT	0.2	85	1		1		1		11		
Hexachlorocyclopentadiene (PP)	77474	50	37	1,680	1,680	3.5	0.3	3.5	0.3	3.5	0.3			
Hexachloroethane (PP)	67721	3	3	100	280	490	350	490	350	490	350	850		
Hydrogen sulfide	7783064						2		2		2			
Iron (NPP)	7439896						1,000		1,000		1,000			
Isophorone (PP)	78591	37	960	1,470	56,000	59,000	43,000	59,000	43,000	59,000	43,000			
Lead (as Pb) (PP) (TT)	7439971	15		15	15	HD (f)	HD (f)	HD (f)	HD (f)	HD (f)	HD (f)	10,000T	100 T	
Malathion (NPP)	121755	140		5,600	5,600		0.1		0.1		0.1			
Manganese (NPP)	7439965	980 T		39,200	39,200							10,000		
Mercury (PP)	7439976	2 T		2 T	84 T	2.4 D	0.01 D	2.4 D	0.01 D	2.4 D	0.01D	5 D		10 T
Methoxychlor (NPP)	72435	40		1,400	1,400		0.03		0.03		0.03			
Methyl mercury (PP)			FT											
Mirex (NPP)	2385855						0.001		0.001		0.001			
Naphthalene (PP)	91203	140	1,520	5,600	5,600	1,100	210	3,200	580	3,200	580			
Nickel (PP)	7440020	140 T	340	5,600	5,600	HD (g)	HD (g)	HD (g)	HD (g)	HD (g)	HD (g)	HD (g)		

PARAMETER	CAS NUMBER	DWS	FC	FBC	PBC	ALc Acute (ug/L)	ALc Chronic (ug/L)	ALw Acute (ug/L)	ALw Chronic (ug/L)	ALedw Acute (ug/L)	ALedw Chronic (ug/L)	ALE Acute (ug/L)	AgI (ug/L)	AgL (ug/L)
Nitrate (NPP) + (MCL)	14797558	10,000		448,000	448,000									
Nitrite (MCL)	14797650	1,000		28,000	28,000									
Nitrate + Nitrite (MCL)		10,000												
Nitrobenzene (PP)	98953	4	140	140	140	1,300	850	1,300	850	1,300	850			
p-Nitrophenol (PP)	100027					4,100	3,000	4,100	3,000	4,100	3,000			
N-nitrosodimethylamine (PP)	62759	0.001	3	0.03										
N-nitrosodi-n-phenylamine (PP)	86306	7	6	290		2,900	200	2,900	200	2,900	200			
N-nitrosodi-n-propylamine (PP)	621647	0.005	0.5	0.2										
Oxamyl (MCL)	23135220	200		7,000	7,000									
Parathion (NPP)	56382					0.07	0.01	0.07	0.01	0.07	0.01			
Paraquat		32		1,260	1,260	100	54	100	54	100	54			
Pentachlorophenol (PP) (MCL)	87865	1	370	12	8,400	pH-dep (h)	pH-dep (h)	pH-dep (h)	pH-dep (h)	pH-dep (h)	pH-dep (h)			
Permethrin		350		14,000	14,000	0.3	0.2	0.3	0.2	0.3	0.2			
Phenanthrene	85018					30	6	30	6	30	6			
pH (NPP)		5.0-9.0					6.5 – 9.0		6.5 – 9.0		6.5 – 9.0			

PARAMETER	CAS NUMBER	DWS	FC	FBC	PBC	ALc Acute (ug/L)	ALc Chronic (ug/L)	ALw Acute (ug/L)	ALw Chronic (ug/L)	ALedw Acute (ug/L)	ALedw Chronic (ug/L)	ALe Acute (ug/L)	AgI (ug/L)	AgL (ug/L)
Phenol	108952	2,100	37	84,000	84,000	5,100	730	7,000	1,000	7,000	1,000	180,000		
Picloram (MCL)	19180201	500												
Polychlorinatedbiphenyls (PCBs) (PP)	1336363	0.5	FT	0.5	6	2	0.01	2	0.02	2	0.02	11	0.001	0.001
Pyrene (PP)	129000	210	800	8,400	8,400									
Radium-226 + Radium 228 (MCL)			5 pCi/L											
Selenate						13		13		13				
Selenite						186		186		186				
Selenium (PP)	7782492	50 T	670 T	1,400 T	1,400T		2 T		2 T		2 T	33 T	20 T	50 T
Silver (PP)	7440224	35	8,000	1,400	1,400	HD (i)		HD (i)		HD (i)		HD (i)		
Simazine (MCL)	112349	4		1,400	1,400									
Styrene (MCL)	100425	100		56,000	56,000	5,600	370	5,600	370	5,600	370			
Suspended Sediment Concentration (SSC) (NPP)							80		80					
2,3,7,8-Tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD) (PP)	1746016	0.00003	FT	0.00003	0.0003	0.01	0.005	0.01	0.005	0.1	0.005	0.1		
1,1,2,2-Tetrachloroethane (PP)	79345	0.2	4	7		4,700	3,200	4,700	3,200	4,700	3,200			

PARAMETER	CAS NUMBER	DWS	FC	FBC	PBC	Alc Acute (ug/L)	ALc Chronic (ug/L)	ALw Acute (ug/L)	ALw Chronic (ug/L)	ALedw Acute (ug/L)	ALedw Chronic (ug/L)	ALe Acute (ug/L)	AgI (ug/L)	AgL (ug/L)
Tetrachloroethylene (PP)	12718-4	5	260	2,800	2,800	2,600	280	6,500	680	6,500	680	15,000		
Thallium (PP)	7440280	2 T	1 T	22 T	22 T	700 D	150 D	700 D	150 D	700 D	150 D	150 D		
Toluene (PP)	108883	1,000	14,950	1,000	56,000	8,700	180	8,700	180	8,700	180			
Toxaphene (PP) MCL)	8001352	3	FT	3		0.7	0.0002	0.7	0.0002	0.7	0.0002	11	0.005	0.005
Tributyltin (NPP)						0.5	0.06	0.5	0.06	0.5	0.06			
1,2,4-Trichlorobenzene (PP) (MCL)	120821	70	70	2,800	2,800	750	130	1,700	300	1,700	300			
1,1,1-Trichloroethane (PP) (MCL)	71556	200		200	200	2,600	1,600	2,600	1,600	2,600	1,600		1,000	
1,1,2-Trichloroethane (PP) (MCL)	79005	5	16	25	1,120	18,000	12,000	18,000	12,000	18,000	12,000			
Trichloroethylene (PP) (MCL)	79016	5		5	5	20,000	1,300	20,000	1,300	20,000	1,300			
2,4,6-Trichlorophenol (PP)	88062	3	2	130		160	25	160	25	160	25	3,000		
2-(2,4,5-Trichlorophenoxy) propionic acid (2,4,5-TP) (NPP) (MCL)	93721	50		2,240	2,240									
Trihalomethanes, Total (MCL)		100												
Uranium (MCL)	7440611	30		840	840									
Vinyl chloride (PP) (MCL)	75-014	2	5	2	840									

PARAMETER	CAS NUMBER	DWS	FC	FBC	PBC	Alc Acute (ug/L)	ALc Chronic (ug/L)	ALw Acute (ug/L)	ALw Chronic (ug/L)	ALedw Acute (ug/L)	ALedw Chronic (ug/L)	ALe Acute (ug/L)	AgI (ug/L)	AgL (ug/L)
Xylenes (Total) (MCL)	1330207	10,000		56,000	56,000									
Zinc (PP)	7440666	2,100 T	5,100T	84,000T	84,000T	HD (j)	HD (j)	HD (j)	HD (j)	HD (j)	HD (j)	HD (j)	10,000T	25,000T

Fish Tissue Criteria to Protect Human Health

Parameter	CAS Number	Fish Consumption (FC) (in mg/kg)
Aldrin	309002	0.0002
Cadmium	7440439	2
Chlordane	57749	0.01
DDD	72548	0.02
DDE	72559	0.01
DDT	50293	0.01
Dieldrin	60571	0.0003
Endosulfan sulfate	1031078	24
Endosulfan	115297	24
Endrin	72208	0.2
Heptachlor	76448	0.0009
Heptachlor epoxide	1024573	0.0004
Hexachlorocyclohexane gamma (lindane)	58999	1.2
Methyl mercury	22967926	0.3
Polychlorinated biphenyls (PCBs)	1336363	0.002
2,3,7,8-Tetrachlorodibenzo-p-dioxin	1746016	0.0000000004
Toxaphene	8001352	0.004

Comment [sep94]: Fish tissue criteria replace water column criteria for the FC designated use.

Footnotes

a - The standard to protect this use is 7 million fibers (longer than 10 micrometers) per liter.

b - Values for ammonia are contained in separate tables located at the end of Appendix A.

c - Cadmium ALc acute standard: $e^{(1.128 [\ln(\text{Hardness})] - 3.6867)*(1.136672-\ln(\text{hardness})*0.041838)}$

ALc chronic standard: $e^{(0.7852 [\ln(\text{Hardness})] - 2.715)*(1.101672-\ln(\text{hardness})*0.041838)}$

ALw acute standard: $e^{(1.128 [\ln(\text{Hardness})] - 3.6867)*(1.136672-\ln(\text{hardness})*0.041838)}$

ALw chronic standard: $e^{(0.7852 [\ln(\text{Hardness})] - 2.715)*(1.101672-\ln(\text{hardness})*0.041838)}$

ALedw acute standard: $e^{(1.128 [\ln(\text{Hardness})] - 3.6867)*(1.136672-\ln(\text{hardness})*0.041838)}$

ALedw chronic standard: $e^{(0.7852 [\ln(\text{Hardness})] - 2.715)*(1.101672-\ln(\text{hardness})*0.041838)}$

ALe acute standard: $e^{(1.128 [\ln(\text{Hardness})] - 0.9691)*(1.136672-\ln(\text{hardness})*0.041838)}$

(See Footnote k)

d - Chromium III ALc acute standard: $e^{(0.8190 [\ln(\text{Hardness})] + 3.7256)*(0.316)}$

ALc chronic standard: $e^{(0.8190 [\ln(\text{Hardness})] + 0.6848)*(0.86)}$

ALw acute standard: $e^{(0.8190 [\ln(\text{Hardness})] + 3.7256)*(0.316)}$

ALw chronic standard: $e^{(0.8190 [\ln(\text{Hardness})] + 0.6848)*(0.86)}$

ALedw acute standard: $e^{(0.8190 [\ln(\text{Hardness})] + 3.7256)*(0.316)}$

ALedw chronic standard: $e^{(0.8190 [\ln(\text{Hardness})] + 0.6848)*(0.86)}$

ALe acute standard: $e^{(0.8190 [\ln(\text{Hardness})] + 4.9361)*(0.316)}$

(See Footnote k)

e - Copper ALC acute standard: $e^{(0.9422 \ln(\text{Hardness}) - 1.7) * 0.96}$

ALC chronic standard: $e^{(0.8545 \ln(\text{Hardness}) - 1.702) * 0.96}$

ALW acute standard: $e^{(0.9422 \ln(\text{Hardness}) - 1.7) * 0.96}$

ALW chronic standard: $e^{(0.8545 \ln(\text{Hardness}) - 1.702) * 0.96}$

ALedw acute standard: $e^{(0.9422 \ln(\text{Hardness}) - 1.7) * 0.96}$

ALedw chronic standard: $e^{(0.8545 \ln(\text{Hardness}) - 1.702) * 0.96}$

ALe acute standard: $e^{(0.9422 \ln(\text{Hardness}) - 1.1514) * 0.96}$

(See Footnote k)

f - Lead ALC acute standard: $e^{(1.2730 \ln(\text{Hardness}) - 1.460) * (1.46203 - \ln(\text{hardness})) * 0.145712}$

ALC chronic standard: $e^{(1.2730 \ln(\text{Hardness}) - 4.705) * (1.46203 - \ln(\text{hardness})) * 0.145712}$

ALW acute standard: $e^{(1.2730 \ln(\text{Hardness}) - 1.460) * (1.46203 - \ln(\text{hardness})) * 0.145712}$

ALW chronic standard: $e^{(1.2730 \ln(\text{Hardness}) - 4.705) * (1.46203 - \ln(\text{hardness})) * 0.145712}$

ALedw acute standard: $e^{(1.2730 \ln(\text{Hardness}) - 1.460) * (1.46203 - \ln(\text{hardness})) * 0.145712}$

ALedw chronic standard: $e^{(1.2730 \ln(\text{Hardness}) - 4.705) * (1.46203 - \ln(\text{hardness})) * 0.145712}$

ALe acute standard: $e^{(1.2730 \ln(\text{Hardness}) - 0.7131) * (1.46203 - \ln(\text{hardness})) * 0.145712}$

(See Footnote k)

g - Nickel ALc acute standard: $e^{(0.8460 [\ln(\text{Hardness})] + 2.255)*(0.998)}$
 ALc chronic standard: $e^{(0.8460 [\ln(\text{Hardness})] + 0.0584)*(0.997)}$
 ALw acute standard: $e^{(0.8460 [\ln(\text{Hardness})] + 2.255)*(0.998)}$
 ALw chronic standard: $e^{(0.8460 [\ln(\text{Hardness})] + 0.0584)*(0.997)}$
 ALedw acute standard: $e^{(0.8460 [\ln(\text{Hardness})] + 2.255)*(0.998)}$
 ALedw chronic standard: $e^{(0.8460 [\ln(\text{Hardness})] + 0.0584)*(0.997)}$
 ALe acute standard: $e^{(0.8460 [\ln(\text{Hardness})] + 4.4389)*(0.998)}$
 (See Footnote k)

h - Pentachlorophenol ALc acute standard: $e^{(1.005 (\text{pH}) - 4.830)}$
 ALc chronic standard: $e^{(1.005 (\text{pH}) - 5.290)}$
 ALw acute standard: $e^{(1.005 (\text{pH}) - 4.830)}$
 ALw chronic standard: $e^{(1.005 (\text{pH}) - 5.290)}$
 ALedw acute standard: $e^{(1.005 (\text{pH}) - 4.830)}$
 ALedw chronic standard: $e^{(1.005 (\text{pH}) - 5.290)}$
 ALe acute standard: $e^{(1.005 (\text{pH}) - 3.4306)}$
 (See Footnote l)

i - Silver ALc acute standard: $e^{(1.72 [\ln(\text{Hardness})] - 6.52)*(0.85)}$
 ALw acute standard: $e^{(1.72 [\ln(\text{Hardness})] - 6.52)*(0.85)}$
 ALedw acute standard: $e^{(1.72 [\ln(\text{Hardness})] - 6.52)*(0.85)}$
 ALe acute standard: $e^{(1.72 [\ln(\text{Hardness})] - 6.52)*(0.85)}$
 (See Footnote k)

j - Zinc

ALc acute standard: $e^{(0.8473 [\ln(\text{Hardness})] + 0.884)*(0.978)}$

ALc chronic standard: $e^{(0.8473 [\ln(\text{Hardness})] + 0.884)*(0.986)}$

ALw acute standard: $e^{(0.8473 [\ln(\text{Hardness})] + 0.532)*(0.978)}$

ALw chronic standard: $e^{(0.8473 [\ln(\text{Hardness})] + 0.433)*(0.986)}$

ALedw acute standard: $e^{(0.8473 [\ln(\text{Hardness})] + 0.532)*(0.978)}$

ALedw chronic standard: $e^{(0.8473 [\ln(\text{Hardness})] + 0.433)*(0.986)}$

ALE acute standard: $e^{(0.8473 [\ln(\text{Hardness})] + 3.1342)*(0.978)}$

(See Footnote k)

- k. Hardness, expressed as mg / L CaCO₃, is inserted into the equation where it says “Hardness.” Hardness is determined according to the following criteria:
1. If the receiving water body has an ALc or ALw designated use, then hardness is based on the hardness of the receiving water body from a sample taken at the same time that the sample for the metal is taken, except that the hardness may not exceed 400 mg / L CaCO₃.
 2. If the receiving water has an ALedw or ALE designated use, then the hardness is based on the hardness of the effluent from a sample taken at the same time that the sample for the metal is taken, except that the hardness may not exceed 400 mg / L CaCO₃.
- l. The pH is inserted into the equation where it says “pH”. pH is determined according to the following criteria:
1. If the receiving water has an ALc or ALw designated use, then pH is based on the pH of the receiving water body from a sample taken at the same time that the sample for pentachlorophenol is taken.
 2. If the receiving water body has an ALedw or ALE designated use, then the pH is based on the pH of the effluent from a sample taken at the same time that the sample for pentachlorophenol is taken.
- m. The mathematical equations for the pH-dependent and hardness-dependent parameters represent the water quality standards. Criteria for the hardness-dependent and pH-dependent parameters have been calculated and are presented in separate tables at the end of Appendix A for the convenience of the user.

- n. In lakes, the acute criteria for sulfide apply only to water samples taken from the epilimnion, or the upper layer of a lake or reservoir.

- o. Bromoform, chloroform, chlorodibromomethane, and dichlorobromomethane are trihalomethanes regulated by the total trihalomethane numeric standard. The total trihalomethane standard is exceeded when the sum of these four compounds exceeds 100 μg / L.

ug / L- micrograms per liter

mg/kg – milligrams per kilogram

pCi/L – picocuries per liter

NNS – No numeric standard

D - Dissolved

T - Total recoverable

TTHM - indicates that the chemical is a trihalomethane. See Trihalomethanes, Total for DWS standard

FT – Fish Tissue concentration

HD – criterion is determined through use of hardness dependent equations

MCL – Maximum Contaminant Level

PP – Priority Pollutant

NPP – Not a Priority Pollutant

Acute Water Quality Standards for dissolved Cadmium

Aquatic life coldwater, warmwater, edw

Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.										
mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L										
1	0.03	41	1.62	81	3.39	121	5.24	161	7.14	201	9.08	241	11.05	281	13.05	321	15.07	361	17.11
2	0.06	42	1.66	82	3.44	122	5.29	162	7.19	202	9.13	242	11.10	282	13.10	322	15.12	362	17.16
3	0.09	43	1.71	83	3.48	123	5.34	163	7.24	203	9.18	243	11.15	283	13.15	323	15.17	363	17.21
4	0.13	44	1.75	84	3.53	124	5.38	164	7.29	204	9.23	244	11.20	284	13.20	324	15.22	364	17.27
5	0.16	45	1.79	85	3.58	125	5.43	165	7.34	205	9.28	245	11.25	285	13.25	325	15.27	365	17.32
6	0.20	46	1.84	86	3.62	126	5.48	166	7.38	206	9.33	246	11.30	286	13.30	326	15.33	366	17.37
7	0.24	47	1.88	87	3.67	127	5.52	167	7.43	207	9.38	247	11.35	287	13.35	327	15.38	367	17.42
8	0.27	48	1.92	88	3.71	128	5.57	168	7.48	208	9.43	248	11.40	288	13.40	328	15.43	368	17.47
9	0.31	49	1.97	89	3.76	129	5.62	169	7.53	209	9.47	249	11.45	289	13.45	329	15.48	369	17.52
10	0.35	50	2.01	90	3.80	130	5.67	170	7.58	210	9.52	250	11.50	290	13.50	330	15.53	370	17.57
11	0.39	51	2.05	91	3.85	131	5.71	171	7.62	211	9.57	251	11.55	291	13.55	331	15.58	371	17.62
12	0.43	52	2.10	92	3.90	132	5.76	172	7.67	212	9.62	252	11.60	292	13.60	332	15.63	372	17.68
13	0.47	53	2.14	93	3.94	133	5.81	173	7.72	213	9.67	253	11.65	293	13.65	333	15.68	373	17.73
14	0.50	54	2.19	94	3.99	134	5.86	174	7.77	214	9.72	254	11.70	294	13.71	334	15.73	374	17.78
15	0.54	55	2.23	95	4.03	135	5.90	175	7.82	215	9.77	255	11.75	295	13.76	335	15.78	375	17.83
16	0.58	56	2.27	96	4.08	136	5.95	176	7.87	216	9.82	256	11.80	296	13.81	336	15.83	376	17.88
17	0.62	57	2.32	97	4.13	137	6.00	177	7.91	217	9.87	257	11.85	297	13.86	337	15.89	377	17.93
18	0.66	58	2.36	98	4.17	138	6.05	178	7.96	218	9.92	258	11.90	298	13.91	338	15.94	378	17.98
19	0.70	59	2.41	99	4.22	139	6.09	179	8.01	219	9.97	259	11.95	299	13.96	339	15.99	379	18.04
20	0.74	60	2.45	100	4.26	140	6.14	180	8.06	220	10.02	260	12.00	300	14.01	340	16.04	380	18.09
21	0.78	61	2.50	101	4.31	141	6.19	181	8.11	221	10.06	261	12.05	301	14.06	341	16.09	381	18.14
22	0.82	62	2.54	102	4.36	142	6.24	182	8.16	222	10.11	262	12.10	302	14.11	342	16.14	382	18.19
23	0.87	63	2.58	103	4.40	143	6.28	183	8.21	223	10.16	263	12.15	303	14.16	343	16.19	383	18.24
24	0.91	64	2.63	104	4.45	144	6.33	184	8.25	224	10.21	264	12.20	304	14.21	344	16.24	384	18.29
25	0.95	65	2.67	105	4.50	145	6.38	185	8.30	225	10.26	265	12.25	305	14.26	345	16.29	385	18.34
26	0.99	66	2.72	106	4.54	146	6.43	186	8.35	226	10.31	266	12.30	306	14.31	346	16.34	386	18.40
27	1.03	67	2.76	107	4.59	147	6.47	187	8.40	227	10.36	267	12.35	307	14.36	347	16.40	387	18.45
28	1.07	68	2.81	108	4.64	148	6.52	188	8.45	228	10.41	268	12.40	308	14.41	348	16.45	388	18.50
29	1.11	69	2.85	109	4.68	149	6.57	189	8.50	229	10.46	269	12.45	309	14.46	349	16.50	389	18.55
30	1.16	70	2.90	110	4.73	150	6.62	190	8.55	230	10.51	270	12.50	310	14.51	350	16.55	390	18.60
31	1.20	71	2.94	111	4.77	151	6.66	191	8.59	231	10.56	271	12.55	311	14.56	351	16.60	391	18.65
32	1.24	72	2.99	112	4.82	152	6.71	192	8.64	232	10.61	272	12.60	312	14.61	352	16.65	392	18.71
33	1.28	73	3.03	113	4.87	153	6.76	193	8.69	233	10.66	273	12.65	313	14.67	353	16.70	393	18.76
34	1.32	74	3.08	114	4.91	154	6.81	194	8.74	234	10.71	274	12.70	314	14.72	354	16.75	394	18.81
35	1.37	75	3.12	115	4.96	155	6.86	195	8.79	235	10.76	275	12.75	315	14.77	355	16.80	395	18.86
36	1.41	76	3.17	116	5.01	156	6.90	196	8.84	236	10.81	276	12.80	316	14.82	356	16.86	396	18.91
37	1.45	77	3.21	117	5.06	157	6.95	197	8.89	237	10.86	277	12.85	317	14.87	357	16.91	397	18.96
38	1.49	78	3.26	118	5.10	158	7.00	198	8.94	238	10.90	278	12.90	318	14.92	358	16.96	398	19.01
39	1.54	79	3.30	119	5.15	159	7.05	199	8.98	239	10.95	279	12.95	319	14.97	359	17.01	399	19.07
40	1.58	80	3.35	120	5.20	160	7.10	200	9.03	240	11.00	280	13.00	320	15.02	360	17.06	400	19.12

Acute Water Quality Standards for dissolved Cadmium
Aquatic life ephemeral

Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.
mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L
1	0.43	41	24.56	81	51.39	121	79.40	161	108.18	201	137.55	241	167.40	281	197.64	321	228.24	361	259.14
2	0.92	42	25.21	82	52.08	122	80.11	162	108.90	202	138.29	242	168.15	282	198.40	322	229.01	362	259.91
3	1.43	43	25.86	83	52.77	123	80.82	163	109.63	203	139.03	243	168.90	283	199.17	323	229.78	363	260.69
4	1.95	44	26.51	84	53.46	124	81.53	164	110.36	204	139.77	244	169.65	284	199.93	324	230.54	364	261.46
5	2.49	45	27.17	85	54.15	125	82.24	165	111.09	205	140.51	245	170.40	285	200.69	325	231.31	365	262.24
6	3.04	46	27.82	86	54.84	126	82.96	166	111.82	206	141.25	246	171.16	286	201.45	326	232.08	366	263.02
7	3.60	47	28.48	87	55.53	127	83.67	167	112.55	207	142.00	247	171.91	287	202.21	327	232.85	367	263.79
8	4.16	48	29.14	88	56.22	128	84.38	168	113.28	208	142.74	248	172.66	288	202.97	328	233.62	368	264.57
9	4.73	49	29.80	89	56.92	129	85.10	169	114.01	209	143.48	249	173.41	289	203.74	329	234.39	369	265.35
10	5.30	50	30.46	90	57.61	130	85.81	170	114.74	210	144.22	250	174.17	290	204.50	330	235.16	370	266.13
11	5.88	51	31.12	91	58.31	131	86.53	171	115.47	211	144.97	251	174.92	291	205.26	331	235.93	371	266.90
12	6.46	52	31.78	92	59.00	132	87.24	172	116.20	212	145.71	252	175.68	292	206.02	332	236.71	372	267.68
13	7.05	53	32.44	93	59.70	133	87.96	173	116.93	213	146.46	253	176.43	293	206.79	333	237.48	373	268.46
14	7.64	54	33.11	94	60.39	134	88.68	174	117.66	214	147.20	254	177.18	294	207.55	334	238.25	374	269.24
15	8.24	55	33.77	95	61.09	135	89.39	175	118.40	215	147.94	255	177.94	295	208.31	335	239.02	375	270.02
16	8.84	56	34.44	96	61.79	136	90.11	176	119.13	216	148.69	256	178.69	296	209.08	336	239.79	376	270.79
17	9.44	57	35.11	97	62.48	137	90.83	177	119.86	217	149.43	257	179.45	297	209.84	337	240.56	377	271.57
18	10.04	58	35.78	98	63.18	138	91.55	178	120.59	218	150.18	258	180.21	298	210.61	338	241.33	378	272.35
19	10.65	59	36.45	99	63.88	139	92.26	179	121.33	219	150.93	259	180.96	299	211.37	339	242.11	379	273.13
20	11.26	60	37.12	100	64.58	140	92.98	180	122.06	220	151.67	260	181.72	300	212.13	340	242.88	380	273.91
21	11.87	61	37.79	101	65.28	141	93.70	181	122.80	221	152.42	261	182.47	301	212.90	341	243.65	381	274.69
22	12.49	62	38.46	102	65.98	142	94.42	182	123.53	222	153.16	262	183.23	302	213.66	342	244.42	382	275.47
23	13.11	63	39.13	103	66.68	143	95.14	183	124.27	223	153.91	263	183.99	303	214.43	343	245.20	383	276.25
24	13.73	64	39.81	104	67.38	144	95.86	184	125.00	224	154.66	264	184.74	304	215.20	344	245.97	384	277.03
25	14.35	65	40.48	105	68.09	145	96.58	185	125.74	225	155.40	265	185.50	305	215.96	345	246.74	385	277.81
26	14.98	66	41.16	106	68.79	146	97.31	186	126.47	226	156.15	266	186.26	306	216.73	346	247.51	386	278.59
27	15.60	67	41.84	107	69.49	147	98.03	187	127.21	227	156.90	267	187.01	307	217.49	347	248.29	387	279.37
28	16.23	68	42.51	108	70.20	148	98.75	188	127.95	228	157.65	268	187.77	308	218.26	348	249.06	388	280.15
29	16.86	69	43.19	109	70.90	149	99.47	189	128.68	229	158.40	269	188.53	309	219.03	349	249.84	389	280.93
30	17.49	70	43.87	110	71.61	150	100.20	190	129.42	230	159.14	270	189.29	310	219.79	350	250.61	390	281.71
31	18.13	71	44.55	111	72.31	151	100.92	191	130.16	231	159.89	271	190.05	311	220.56	351	251.38	391	282.49
32	18.76	72	45.23	112	73.02	152	101.64	192	130.89	232	160.64	272	190.81	312	221.33	352	252.16	392	283.27
33	19.40	73	45.91	113	73.72	153	102.37	193	131.63	233	161.39	273	191.56	313	222.09	353	252.93	393	284.05
34	20.04	74	46.60	114	74.43	154	103.09	194	132.37	234	162.14	274	192.32	314	222.86	354	253.71	394	284.83
35	20.68	75	47.28	115	75.14	155	103.82	195	133.11	235	162.89	275	193.08	315	223.63	355	254.48	395	285.61
36	21.32	76	47.96	116	75.85	156	104.54	196	133.85	236	163.64	276	193.84	316	224.40	356	255.26	396	286.40
37	21.97	77	48.65	117	76.56	157	105.27	197	134.59	237	164.39	277	194.60	317	225.16	357	256.03	397	287.18
38	22.61	78	49.33	118	77.27	158	106.00	198	135.33	238	165.14	278	195.36	318	225.93	358	256.81	398	287.96
39	23.26	79	50.02	119	77.97	159	106.72	199	136.07	239	165.89	279	196.12	319	226.70	359	257.58	399	288.74
40	23.91	80	50.71	120	78.68	160	107.45	200	136.81	240	166.64	280	196.88	320	227.47	360	258.36	400	289.52

Chronic Water Quality Standards for dissolved Cadmium
 Aquatic life coldwater, warmwater and edw

Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.
mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L
1	0.073	41	1.16	81	1.92	121	2.58	161	3.18	201	3.75	241	4.28	281	4.80	321	5.29	361	5.77
2	0.12	42	1.18	82	1.93	122	2.59	162	3.20	202	3.76	242	4.30	282	4.81	322	5.30	362	5.78
3	0.17	43	1.20	83	1.95	123	2.61	163	3.21	203	3.77	243	4.31	283	4.82	323	5.32	363	5.79
4	0.21	44	1.22	84	1.97	124	2.62	164	3.23	204	3.79	244	4.32	284	4.84	324	5.33	364	5.81
5	0.24	45	1.24	85	1.98	125	2.64	165	3.24	205	3.80	245	4.34	285	4.85	325	5.34	365	5.82
6	0.28	46	1.26	86	2.00	126	2.65	166	3.25	206	3.82	246	4.35	286	4.86	326	5.35	366	5.83
7	0.31	47	1.28	87	2.02	127	2.67	167	3.27	207	3.83	247	4.36	287	4.87	327	5.36	367	5.84
8	0.34	48	1.30	88	2.04	128	2.69	168	3.28	208	3.84	248	4.38	288	4.89	328	5.38	368	5.85
9	0.38	49	1.32	89	2.05	129	2.70	169	3.30	209	3.86	249	4.39	289	4.90	329	5.39	369	5.86
10	0.41	50	1.34	90	2.07	130	2.72	170	3.31	210	3.87	250	4.40	290	4.91	330	5.40	370	5.88
11	0.44	51	1.36	91	2.09	131	2.73	171	3.33	211	3.88	251	4.41	291	4.92	331	5.41	371	5.89
12	0.46	52	1.38	92	2.10	132	2.75	172	3.34	212	3.90	252	4.43	292	4.94	332	5.42	372	5.90
13	0.49	53	1.40	93	2.12	133	2.76	173	3.35	213	3.91	253	4.44	293	4.95	333	5.44	373	5.91
14	0.52	54	1.42	94	2.14	134	2.78	174	3.37	214	3.92	254	4.45	294	4.96	334	5.45	374	5.92
15	0.55	55	1.44	95	2.15	135	2.79	175	3.38	215	3.94	255	4.47	295	4.97	335	5.46	375	5.93
16	0.58	56	1.46	96	2.17	136	2.81	176	3.40	216	3.95	256	4.48	296	4.98	336	5.47	376	5.95
17	0.60	57	1.48	97	2.19	137	2.82	177	3.41	217	3.97	257	4.49	297	5.00	337	5.48	377	5.96
18	0.63	58	1.50	98	2.20	138	2.84	178	3.43	218	3.98	258	4.50	298	5.01	338	5.50	378	5.97
19	0.65	59	1.51	99	2.22	139	2.85	179	3.44	219	3.99	259	4.52	299	5.02	339	5.51	379	5.98
20	0.68	60	1.53	100	2.24	140	2.87	180	3.45	220	4.01	260	4.53	300	5.03	340	5.52	380	5.99
21	0.70	61	1.55	101	2.25	141	2.88	181	3.47	221	4.02	261	4.54	301	5.05	341	5.53	381	6.00
22	0.73	62	1.57	102	2.27	142	2.90	182	3.48	222	4.03	262	4.56	302	5.06	342	5.54	382	6.02
23	0.75	63	1.59	103	2.29	143	2.91	183	3.50	223	4.05	263	4.57	303	5.07	343	5.56	383	6.03
24	0.78	64	1.61	104	2.30	144	2.93	184	3.51	224	4.06	264	4.58	304	5.08	344	5.57	384	6.04
25	0.80	65	1.63	105	2.32	145	2.94	185	3.53	225	4.07	265	4.59	305	5.10	345	5.58	385	6.05
26	0.83	66	1.65	106	2.34	146	2.96	186	3.54	226	4.09	266	4.61	306	5.11	346	5.59	386	6.06
27	0.85	67	1.66	107	2.35	147	2.97	187	3.55	227	4.10	267	4.62	307	5.12	347	5.60	387	6.07
28	0.87	68	1.68	108	2.37	148	2.99	188	3.57	228	4.11	268	4.63	308	5.13	348	5.62	388	6.08
29	0.89	69	1.70	109	2.39	149	3.00	189	3.58	229	4.13	269	4.65	309	5.15	349	5.63	389	6.10
30	0.92	70	1.72	110	2.40	150	3.02	190	3.60	230	4.14	270	4.66	310	5.16	350	5.64	390	6.11
31	0.94	71	1.74	111	2.42	151	3.03	191	3.61	231	4.15	271	4.67	311	5.17	351	5.65	391	6.12
32	0.96	72	1.76	112	2.43	152	3.05	192	3.62	232	4.17	272	4.68	312	5.18	352	5.66	392	6.13
33	0.98	73	1.77	113	2.45	153	3.06	193	3.64	233	4.18	273	4.70	313	5.19	353	5.68	393	6.14
34	1.01	74	1.79	114	2.47	154	3.08	194	3.65	234	4.19	274	4.71	314	5.21	354	5.69	394	6.15
35	1.03	75	1.81	115	2.48	155	3.09	195	3.66	235	4.21	275	4.72	315	5.22	355	5.70	395	6.17
36	1.05	76	1.83	116	2.50	156	3.11	196	3.68	236	4.22	276	4.73	316	5.23	356	5.71	396	6.18
37	1.07	77	1.84	117	2.51	157	3.12	197	3.69	237	4.23	277	4.75	317	5.24	357	5.72	397	6.19
38	1.09	78	1.86	118	2.53	158	3.14	198	3.71	238	4.24	278	4.76	318	5.26	358	5.73	398	6.20
39	1.11	79	1.88	119	2.54	159	3.15	199	3.72	239	4.26	279	4.77	319	5.27	359	5.75	399	6.21
40	1.14	80	1.90	120	2.56	160	3.17	200	3.73	240	4.27	280	4.78	320	5.28	360	5.76	400	6.22

Acute Water Quality Standards for dissolved Chromium III
 Aquatic life coldwater, warmwater and edw

Hard.	Std.																		
mg/L	ug/L																		
1	13	41	275	81	479	121	666	161	842	201	1009	241	1171	281	1328	321	1481	361	1630
2	23	42	280	82	484	122	671	162	846	202	1013	242	1175	282	1332	322	1485	362	1634
3	32	43	285	83	489	123	675	163	850	203	1017	243	1179	283	1336	323	1488	363	1638
4	41	44	291	84	494	124	680	164	854	204	1022	244	1183	284	1340	324	1492	364	1641
5	49	45	296	85	499	125	684	165	859	205	1026	245	1187	285	1343	325	1496	365	1645
6	57	46	302	86	504	126	688	166	863	206	1030	246	1191	286	1347	326	1500	366	1649
7	65	47	307	87	508	127	693	167	867	207	1034	247	1195	287	1351	327	1504	367	1653
8	72	48	312	88	513	128	697	168	871	208	1038	248	1199	288	1355	328	1507	368	1656
9	79	49	318	89	518	129	702	169	876	209	1042	249	1203	289	1359	329	1511	369	1660
10	86	50	323	90	523	130	706	170	880	210	1046	250	1207	290	1363	330	1515	370	1664
11	93	51	328	91	527	131	711	171	884	211	1050	251	1211	291	1367	331	1519	371	1667
12	100	52	334	92	532	132	715	172	888	212	1054	252	1215	292	1370	332	1522	372	1671
13	107	53	339	93	537	133	720	173	893	213	1058	253	1219	293	1374	333	1526	373	1675
14	114	54	344	94	542	134	724	174	897	214	1062	254	1223	294	1378	334	1530	374	1678
15	120	55	349	95	546	135	729	175	901	215	1067	255	1226	295	1382	335	1534	375	1682
16	127	56	354	96	551	136	733	176	905	216	1071	256	1230	296	1386	336	1537	376	1686
17	133	57	360	97	556	137	737	177	909	217	1075	257	1234	297	1390	337	1541	377	1689
18	140	58	365	98	560	138	742	178	914	218	1079	258	1238	298	1393	338	1545	378	1693
19	146	59	370	99	565	139	746	179	918	219	1083	259	1242	299	1397	339	1549	379	1697
20	152	60	375	100	570	140	751	180	922	220	1087	260	1246	300	1401	340	1552	380	1700
21	159	61	380	101	574	141	755	181	926	221	1091	261	1250	301	1405	341	1556	381	1704
22	165	62	385	102	579	142	759	182	930	222	1095	262	1254	302	1409	342	1560	382	1708
23	171	63	390	103	584	143	764	183	935	223	1099	263	1258	303	1413	343	1564	383	1711
24	177	64	395	104	588	144	768	184	939	224	1103	264	1262	304	1416	344	1567	384	1715
25	183	65	400	105	593	145	772	185	943	225	1107	265	1266	305	1420	345	1571	385	1719
26	189	66	405	106	598	146	777	186	947	226	1111	266	1270	306	1424	346	1575	386	1722
27	195	67	410	107	602	147	781	187	951	227	1115	267	1274	307	1428	347	1578	387	1726
28	201	68	415	108	607	148	785	188	955	228	1119	268	1277	308	1432	348	1582	388	1730
29	207	69	420	109	611	149	790	189	960	229	1123	269	1281	309	1435	349	1586	389	1733
30	213	70	425	110	616	150	794	190	964	230	1127	270	1285	310	1439	350	1590	390	1737
31	218	71	430	111	621	151	799	191	968	231	1131	271	1289	311	1443	351	1593	391	1741
32	224	72	435	112	625	152	803	192	972	232	1135	272	1293	312	1447	352	1597	392	1744
33	230	73	440	113	630	153	807	193	976	233	1139	273	1297	313	1451	353	1601	393	1748
34	235	74	445	114	634	154	811	194	980	234	1143	274	1301	314	1454	354	1604	394	1751
35	241	75	450	115	639	155	816	195	985	235	1147	275	1305	315	1458	355	1608	395	1755
36	247	76	455	116	643	156	820	196	989	236	1151	276	1309	316	1462	356	1612	396	1759
37	252	77	460	117	648	157	824	197	993	237	1155	277	1312	317	1466	357	1616	397	1762
38	258	78	465	118	652	158	829	198	997	238	1159	278	1316	318	1470	358	1619	398	1766
39	263	79	470	119	657	159	833	199	1001	239	1163	279	1320	319	1473	359	1623	399	1770
40	269	80	475	120	662	160	837	200	1005	240	1167	280	1324	320	1477	360	1627	400	1773

Acute Water Quality Standards for dissolved Chromium III
Aquatic life ephemeral

Hard.	Std.																						
mg/L	ug/L																						
1	44	41	921	81	1609	121	2235	161	2824	201	3386	241	3929	281	4456	321	4969	361	5470				
2	78	42	939	82	1625	122	2250	162	2838	202	3400	242	3942	282	4469	322	4981	362	5483				
3	108	43	958	83	1641	123	2265	163	2852	203	3414	243	3956	283	4481	323	4994	363	5495				
4	137	44	976	84	1657	124	2280	164	2867	204	3428	244	3969	284	4494	324	5007	364	5507				
5	164	45	994	85	1673	125	2295	165	2881	205	3441	245	3982	285	4507	325	5019	365	5520				
6	191	46	1012	86	1690	126	2310	166	2895	206	3455	246	3996	286	4520	326	5032	366	5532				
7	217	47	1030	87	1706	127	2325	167	2909	207	3469	247	4009	287	4533	327	5045	367	5545				
8	242	48	1048	88	1722	128	2340	168	2924	208	3483	248	4022	288	4546	328	5057	368	5557				
9	266	49	1066	89	1738	129	2355	169	2938	209	3496	249	4035	289	4559	329	5070	369	5569				
10	290	50	1084	90	1754	130	2370	170	2952	210	3510	250	4049	290	4572	330	5082	370	5582				
11	314	51	1101	91	1770	131	2385	171	2966	211	3524	251	4062	291	4585	331	5095	371	5594				
12	337	52	1119	92	1785	132	2400	172	2981	212	3537	252	4075	292	4598	332	5108	372	5606				
13	360	53	1137	93	1801	133	2415	173	2995	213	3551	253	4088	293	4611	333	5120	373	5619				
14	382	54	1154	94	1817	134	2429	174	3009	214	3565	254	4102	294	4624	334	5133	374	5631				
15	404	55	1172	95	1833	135	2444	175	3023	215	3578	255	4115	295	4637	335	5145	375	5643				
16	426	56	1189	96	1849	136	2459	176	3037	216	3592	256	4128	296	4649	336	5158	376	5656				
17	448	57	1206	97	1865	137	2474	177	3051	217	3606	257	4141	297	4662	337	5171	377	5668				
18	469	58	1224	98	1880	138	2489	178	3066	218	3619	258	4155	298	4675	338	5183	378	5680				
19	491	59	1241	99	1896	139	2503	179	3080	219	3633	259	4168	299	4688	339	5196	379	5693				
20	512	60	1258	100	1912	140	2518	180	3094	220	3646	260	4181	300	4701	340	5208	380	5705				
21	532	61	1275	101	1927	141	2533	181	3108	221	3660	261	4194	301	4714	341	5221	381	5717				
22	553	62	1292	102	1943	142	2548	182	3122	222	3673	262	4207	302	4726	342	5233	382	5730				
23	574	63	1309	103	1958	143	2562	183	3136	223	3687	263	4220	303	4739	343	5246	383	5742				
24	594	64	1326	104	1974	144	2577	184	3150	224	3701	264	4234	304	4752	344	5258	384	5754				
25	614	65	1343	105	1990	145	2592	185	3164	225	3714	265	4247	305	4765	345	5271	385	5766				
26	634	66	1360	106	2005	146	2606	186	3178	226	3728	266	4260	306	4778	346	5283	386	5779				
27	654	67	1377	107	2021	147	2621	187	3192	227	3741	267	4273	307	4790	347	5296	387	5791				
28	674	68	1394	108	2036	148	2635	188	3206	228	3755	268	4286	308	4803	348	5308	388	5803				
29	694	69	1411	109	2051	149	2650	189	3220	229	3768	269	4299	309	4816	349	5321	389	5815				
30	713	70	1427	110	2067	150	2665	190	3234	230	3781	270	4312	310	4829	350	5333	390	5828				
31	733	71	1444	111	2082	151	2679	191	3248	231	3795	271	4325	311	4841	351	5346	391	5840				
32	752	72	1461	112	2098	152	2694	192	3262	232	3808	272	4338	312	4854	352	5358	392	5852				
33	771	73	1477	113	2113	153	2708	193	3276	233	3822	273	4351	313	4867	353	5371	393	5864				
34	790	74	1494	114	2128	154	2723	194	3289	234	3835	274	4364	314	4880	354	5383	394	5877				
35	809	75	1510	115	2143	155	2737	195	3303	235	3849	275	4377	315	4892	355	5396	395	5889				
36	828	76	1527	116	2159	156	2752	196	3317	236	3862	276	4390	316	4905	356	5408	396	5901				
37	847	77	1543	117	2174	157	2766	197	3331	237	3875	277	4404	317	4918	357	5421	397	5913				
38	865	78	1560	118	2189	158	2780	198	3345	238	3889	278	4417	318	4931	358	5433	398	5925				
39	884	79	1576	119	2204	159	2795	199	3359	239	3902	279	4430	319	4943	359	5445	399	5938				
40	903	80	1592	120	2220	160	2809	200	3372	240	3916	280	4443	320	4956	360	5458	400	5950				

Chronic Water Quality Standards for dissolved Chromium III
Aquatic life coldwater, warmwater and edw

Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.
mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L
1	1.71	41	35.71	81	62.37	121	86.64	161	109.47	201	131.29	241	152.33	281	172.74	321	192.63	361	212.08
2	3.01	42	36.42	82	63.00	122	87.22	162	110.03	202	131.82	242	152.84	282	173.24	322	193.12	362	212.56
3	4.19	43	37.13	83	63.63	123	87.81	163	110.58	203	132.36	243	153.36	283	173.75	323	193.62	363	213.04
4	5.31	44	37.83	84	64.25	124	88.39	164	111.14	204	132.89	244	153.88	284	174.25	324	194.11	364	213.52
5	6.37	45	38.54	85	64.88	125	88.98	165	111.69	205	133.42	245	154.39	285	174.75	325	194.60	365	214.00
6	7.40	46	39.24	86	65.50	126	89.56	166	112.25	206	133.96	246	154.91	286	175.25	326	195.09	366	214.48
7	8.40	47	39.93	87	66.13	127	90.14	167	112.80	207	134.49	247	155.43	287	175.76	327	195.58	367	214.96
8	9.37	48	40.63	88	66.75	128	90.72	168	113.35	208	135.02	248	155.94	288	176.26	328	196.07	368	215.44
9	10.31	49	41.32	89	67.37	129	91.30	169	113.90	209	135.55	249	156.46	289	176.76	329	196.56	369	215.92
10	11.24	50	42.01	90	67.99	130	91.88	170	114.46	210	136.08	250	156.97	290	177.26	330	197.05	370	216.40
11	12.16	51	42.70	91	68.61	131	92.46	171	115.01	211	136.61	251	157.48	291	177.76	331	197.53	371	216.88
12	13.05	52	43.38	92	69.22	132	93.04	172	115.56	212	137.14	252	158.00	292	178.26	332	198.02	372	217.36
13	13.94	53	44.06	93	69.84	133	93.61	173	116.11	213	137.67	253	158.51	293	178.76	333	198.51	373	217.84
14	14.81	54	44.74	94	70.45	134	94.19	174	116.66	214	138.20	254	159.02	294	179.26	334	199.00	374	218.32
15	15.67	55	45.42	95	71.07	135	94.76	175	117.21	215	138.73	255	159.54	295	179.76	335	199.49	375	218.79
16	16.52	56	46.10	96	71.68	136	95.34	176	117.75	216	139.26	256	160.05	296	180.26	336	199.97	376	219.27
17	17.36	57	46.77	97	72.29	137	95.91	177	118.30	217	139.79	257	160.56	297	180.76	337	200.46	377	219.75
18	18.20	58	47.44	98	72.90	138	96.49	178	118.85	218	140.31	258	161.07	298	181.25	338	200.95	378	220.23
19	19.02	59	48.11	99	73.51	139	97.06	179	119.40	219	140.84	259	161.58	299	181.75	339	201.44	379	220.70
20	19.84	60	48.78	100	74.11	140	97.63	180	119.94	220	141.37	260	162.09	300	182.25	340	201.92	380	221.18
21	20.64	61	49.44	101	74.72	141	98.20	181	120.49	221	141.89	261	162.60	301	182.75	341	202.41	381	221.66
22	21.45	62	50.10	102	75.33	142	98.77	182	121.03	222	142.42	262	163.11	302	183.24	342	202.89	382	222.13
23	22.24	63	50.76	103	75.93	143	99.34	183	121.58	223	142.94	263	163.62	303	183.74	343	203.38	383	222.61
24	23.03	64	51.42	104	76.53	144	99.91	184	122.12	224	143.47	264	164.13	304	184.24	344	203.87	384	223.09
25	23.81	65	52.08	105	77.14	145	100.48	185	122.66	225	143.99	265	164.64	305	184.73	345	204.35	385	223.56
26	24.59	66	52.74	106	77.74	146	101.04	186	123.21	226	144.52	266	165.15	306	185.23	346	204.84	386	224.04
27	25.36	67	53.39	107	78.34	147	101.61	187	123.75	227	145.04	267	165.66	307	185.72	347	205.32	387	224.51
28	26.13	68	54.04	108	78.94	148	102.18	188	124.29	228	145.56	268	166.17	308	186.22	348	205.81	388	224.99
29	26.89	69	54.69	109	79.53	149	102.74	189	124.83	229	146.09	269	166.67	309	186.72	349	206.29	389	225.46
30	27.65	70	55.34	110	80.13	150	103.31	190	125.37	230	146.61	270	167.18	310	187.21	350	206.77	390	225.94
31	28.40	71	55.99	111	80.73	151	103.87	191	125.91	231	147.13	271	167.69	311	187.70	351	207.26	391	226.41
32	29.15	72	56.63	112	81.32	152	104.43	192	126.45	232	147.65	272	168.20	312	188.20	352	207.74	392	226.88
33	29.89	73	57.27	113	81.92	153	104.99	193	126.99	233	148.17	273	168.70	313	188.69	353	208.22	393	227.36
34	30.63	74	57.92	114	82.51	154	105.56	194	127.53	234	148.69	274	169.21	314	189.19	354	208.71	394	227.83
35	31.37	75	58.56	115	83.10	155	106.12	195	128.07	235	149.21	275	169.71	315	189.68	355	209.19	395	228.31
36	32.10	76	59.20	116	83.69	156	106.68	196	128.61	236	149.73	276	170.22	316	190.17	356	209.67	396	228.78
37	32.83	77	59.83	117	84.28	157	107.24	197	129.14	237	150.25	277	170.72	317	190.66	357	210.15	397	229.25
38	33.55	78	60.47	118	84.87	158	107.80	198	129.68	238	150.77	278	171.23	318	191.16	358	210.64	398	229.72
39	34.28	79	61.10	119	85.46	159	108.35	199	130.22	239	151.29	279	171.73	319	191.65	359	211.12	399	230.20
40	34.99	80	61.74	120	86.05	160	108.91	200	130.75	240	151.81	280	172.24	320	192.14	360	211.60	400	230.67

Acute Water Quality Standards for dissolved Copper

Aquatic life coldwater, warmwater and edw

Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.
mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L
1	0.18	41	5.80	81	11.02	121	16.08	161	21.05	201	25.94	241	30.78	281	35.57	321	40.33	361	45.05				
2	0.34	42	5.93	82	11.15	122	16.21	162	21.17	202	26.07	242	30.90	282	35.69	322	40.45	362	45.16				
3	0.49	43	6.07	83	11.28	123	16.33	163	21.30	203	26.19	243	31.02	283	35.81	323	40.56	363	45.28				
4	0.65	44	6.20	84	11.40	124	16.46	164	21.42	204	26.31	244	31.14	284	35.93	324	40.68	364	45.40				
5	0.80	45	6.33	85	11.53	125	16.58	165	21.54	205	26.43	245	31.26	285	36.05	325	40.80	365	45.52				
6	0.95	46	6.47	86	11.66	126	16.71	166	21.66	206	26.55	246	31.38	286	36.17	326	40.92	366	45.63				
7	1.10	47	6.60	87	11.79	127	16.83	167	21.79	207	26.67	247	31.50	287	36.29	327	41.04	367	45.75				
8	1.24	48	6.73	88	11.91	128	16.96	168	21.91	208	26.79	248	31.62	288	36.41	328	41.16	368	45.87				
9	1.39	49	6.86	89	12.04	129	17.08	169	22.03	209	26.92	249	31.74	289	36.53	329	41.27	369	45.99				
10	1.54	50	6.99	90	12.17	130	17.21	170	22.16	210	27.04	250	31.86	290	36.65	330	41.39	370	46.10				
11	1.68	51	7.13	91	12.30	131	17.33	171	22.28	211	27.16	251	31.98	291	36.77	331	41.51	371	46.22				
12	1.82	52	7.26	92	12.42	132	17.46	172	22.40	212	27.28	252	32.10	292	36.89	332	41.63	372	46.34				
13	1.97	53	7.39	93	12.55	133	17.58	173	22.52	213	27.40	253	32.22	293	37.00	333	41.75	373	46.46				
14	2.11	54	7.52	94	12.68	134	17.71	174	22.65	214	27.52	254	32.34	294	37.12	334	41.86	374	46.57				
15	2.25	55	7.65	95	12.81	135	17.83	175	22.77	215	27.64	255	32.46	295	37.24	335	41.98	375	46.69				
16	2.39	56	7.78	96	12.93	136	17.96	176	22.89	216	27.76	256	32.58	296	37.36	336	42.10	376	46.81				
17	2.53	57	7.91	97	13.06	137	18.08	177	23.02	217	27.89	257	32.70	297	37.48	337	42.22	377	46.92				
18	2.67	58	8.04	98	13.19	138	18.20	178	23.14	218	28.01	258	32.82	298	37.60	338	42.34	378	47.04				
19	2.81	59	8.17	99	13.31	139	18.33	179	23.26	219	28.13	259	32.94	299	37.72	339	42.45	379	47.16				
20	2.95	60	8.31	100	13.44	140	18.45	180	23.38	220	28.25	260	33.06	300	37.84	340	42.57	380	47.28				
21	3.09	61	8.44	101	13.57	141	18.58	181	23.50	221	28.37	261	33.18	301	37.96	341	42.69	381	47.39				
22	3.23	62	8.57	102	13.69	142	18.70	182	23.63	222	28.49	262	33.30	302	38.07	342	42.81	382	47.51				
23	3.37	63	8.70	103	13.82	143	18.82	183	23.75	223	28.61	263	33.42	303	38.19	343	42.93	383	47.63				
24	3.50	64	8.83	104	13.95	144	18.95	184	23.87	224	28.73	264	33.54	304	38.31	344	43.04	384	47.74				
25	3.64	65	8.96	105	14.07	145	19.07	185	23.99	225	28.85	265	33.66	305	38.43	345	43.16	385	47.86				
26	3.78	66	9.09	106	14.20	146	19.20	186	24.12	226	28.97	266	33.78	306	38.55	346	43.28	386	47.98				
27	3.91	67	9.22	107	14.32	147	19.32	187	24.24	227	29.09	267	33.90	307	38.67	347	43.40	387	48.10				
28	4.05	68	9.34	108	14.45	148	19.44	188	24.36	228	29.22	268	34.02	308	38.79	348	43.52	388	48.21				
29	4.19	69	9.47	109	14.58	149	19.57	189	24.48	229	29.34	269	34.14	309	38.91	349	43.63	389	48.33				
30	4.32	70	9.60	110	14.70	150	19.69	190	24.60	230	29.46	270	34.26	310	39.02	350	43.75	390	48.45				
31	4.46	71	9.73	111	14.83	151	19.82	191	24.73	231	29.58	271	34.38	311	39.14	351	43.87	391	48.56				
32	4.59	72	9.86	112	14.95	152	19.94	192	24.85	232	29.70	272	34.50	312	39.26	352	43.99	392	48.68				
33	4.73	73	9.99	113	15.08	153	20.06	193	24.97	233	29.82	273	34.62	313	39.38	353	44.10	393	48.80				
34	4.86	74	10.12	114	15.20	154	20.19	194	25.09	234	29.94	274	34.74	314	39.50	354	44.22	394	48.92				
35	5.00	75	10.25	115	15.33	155	20.31	195	25.21	235	30.06	275	34.86	315	39.62	355	44.34	395	49.03				
36	5.13	76	10.38	116	15.46	156	20.43	196	25.34	236	30.18	276	34.98	316	39.74	356	44.46	396	49.15				
37	5.27	77	10.51	117	15.58	157	20.56	197	25.46	237	30.30	277	35.10	317	39.85	357	44.58	397	49.27				
38	5.40	78	10.63	118	15.71	158	20.68	198	25.58	238	30.42	278	35.22	318	39.97	358	44.69	398	49.38				
39	5.53	79	10.76	119	15.83	159	20.80	199	25.70	239	30.54	279	35.34	319	40.09	359	44.81	399	49.50				
40	5.67	80	10.89	120	15.96	160	20.93	200	25.82	240	30.66	280	35.46	320	40.21	360	44.93	400	49.62				

Acute Water Quality Standards for dissolved Copper

Aquatic life ephemeral

Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.
mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L
1	0.30	41	10.04	81	19.07	121	27.84	161	36.43	201	44.91	241	53.28	281	61.57	321	69.80	361	77.97		
2	0.58	42	10.27	82	19.29	122	28.05	162	36.65	202	45.12	242	53.49	282	61.78	322	70.00	362	78.17		
3	0.85	43	10.50	83	19.52	123	28.27	163	36.86	203	45.33	243	53.70	283	61.99	323	70.21	363	78.37		
4	1.12	44	10.73	84	19.74	124	28.49	164	37.07	204	45.54	244	53.90	284	62.19	324	70.41	364	78.58		
5	1.38	45	10.96	85	19.96	125	28.70	165	37.29	205	45.75	245	54.11	285	62.40	325	70.62	365	78.78		
6	1.64	46	11.19	86	20.18	126	28.92	166	37.50	206	45.96	246	54.32	286	62.61	326	70.82	366	78.98		
7	1.90	47	11.42	87	20.40	127	29.14	167	37.71	207	46.17	247	54.53	287	62.81	327	71.03	367	79.19		
8	2.15	48	11.65	88	20.62	128	29.35	168	37.92	208	46.38	248	54.74	288	63.02	328	71.23	368	79.39		
9	2.41	49	11.88	89	20.84	129	29.57	169	38.14	209	46.59	249	54.94	289	63.22	329	71.44	369	79.59		
10	2.66	50	12.11	90	21.06	130	29.78	170	38.35	210	46.80	250	55.15	290	63.43	330	71.64	370	79.80		
11	2.91	51	12.33	91	21.28	131	30.00	171	38.56	211	47.01	251	55.36	291	63.64	331	71.85	371	80.00		
12	3.16	52	12.56	92	21.50	132	30.22	172	38.77	212	47.22	252	55.57	292	63.84	332	72.05	372	80.20		
13	3.40	53	12.79	93	21.72	133	30.43	173	38.99	213	47.43	253	55.78	293	64.05	333	72.26	373	80.41		
14	3.65	54	13.02	94	21.94	134	30.65	174	39.20	214	47.64	254	55.98	294	64.25	334	72.46	374	80.61		
15	3.89	55	13.24	95	22.16	135	30.86	175	39.41	215	47.85	255	56.19	295	64.46	335	72.66	375	80.81		
16	4.14	56	13.47	96	22.38	136	31.08	176	39.62	216	48.06	256	56.40	296	64.67	336	72.87	376	81.02		
17	4.38	57	13.70	97	22.60	137	31.29	177	39.84	217	48.27	257	56.61	297	64.87	337	73.07	377	81.22		
18	4.62	58	13.92	98	22.82	138	31.51	178	40.05	218	48.48	258	56.81	298	65.08	338	73.28	378	81.42		
19	4.86	59	14.15	99	23.04	139	31.72	179	40.26	219	48.68	259	57.02	299	65.28	339	73.48	379	81.62		
20	5.11	60	14.37	100	23.26	140	31.94	180	40.47	220	48.89	260	57.23	300	65.49	340	73.69	380	81.83		
21	5.35	61	14.60	101	23.48	141	32.15	181	40.68	221	49.10	261	57.44	301	65.69	341	73.89	381	82.03		
22	5.59	62	14.83	102	23.70	142	32.37	182	40.89	222	49.31	262	57.64	302	65.90	342	74.09	382	82.23		
23	5.82	63	15.05	103	23.92	143	32.58	183	41.11	223	49.52	263	57.85	303	66.11	343	74.30	383	82.44		
24	6.06	64	15.28	104	24.14	144	32.80	184	41.32	224	49.73	264	58.06	304	66.31	344	74.50	384	82.64		
25	6.30	65	15.50	105	24.36	145	33.01	185	41.53	225	49.94	265	58.26	305	66.52	345	74.71	385	82.84		
26	6.54	66	15.73	106	24.57	146	33.23	186	41.74	226	50.15	266	58.47	306	66.72	346	74.91	386	83.04		
27	6.77	67	15.95	107	24.79	147	33.44	187	41.95	227	50.36	267	58.68	307	66.93	347	75.11	387	83.25		
28	7.01	68	16.17	108	25.01	148	33.65	188	42.16	228	50.57	268	58.89	308	67.13	348	75.32	388	83.45		
29	7.25	69	16.40	109	25.23	149	33.87	189	42.37	229	50.78	269	59.09	309	67.34	349	75.52	389	83.65		
30	7.48	70	16.62	110	25.45	150	34.08	190	42.59	230	50.99	270	59.30	310	67.54	350	75.73	390	83.85		
31	7.72	71	16.85	111	25.66	151	34.30	191	42.80	231	51.19	271	59.51	311	67.75	351	75.93	391	84.06		
32	7.95	72	17.07	112	25.88	152	34.51	192	43.01	232	51.40	272	59.71	312	67.95	352	76.13	392	84.26		
33	8.18	73	17.29	113	26.10	153	34.72	193	43.22	233	51.61	273	59.92	313	68.16	353	76.34	393	84.46		
34	8.42	74	17.52	114	26.32	154	34.94	194	43.43	234	51.82	274	60.13	314	68.36	354	76.54	394	84.66		
35	8.65	75	17.74	115	26.53	155	35.15	195	43.64	235	52.03	275	60.33	315	68.57	355	76.74	395	84.87		
36	8.88	76	17.96	116	26.75	156	35.37	196	43.85	236	52.24	276	60.54	316	68.77	356	76.95	396	85.07		
37	9.12	77	18.18	117	26.97	157	35.58	197	44.06	237	52.45	277	60.75	317	68.98	357	77.15	397	85.27		

38	9.35	78	18.41	118	27.19	158	35.79	198	44.27	238	52.65	278	60.95	318	69.18	358	77.36	398	85.47
39	9.58	79	18.63	119	27.40	159	36.01	199	44.48	239	52.86	279	61.16	319	69.39	359	77.56	399	85.68
40	9.81	80	18.85	120	27.62	160	36.22	200	44.69	240	53.07	280	61.37	320	69.59	360	77.76	400	85.88

Chronic Water Quality Standards for dissolved Copper
 Aquatic life coldwater, warmwater and edw

Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.
mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L
1	0.18	41	4.18	81	7.48	121	10.54	161	13.45	201	16.26	241	18.99	281	21.65	321	24.26	361	26.82
2	0.32	42	4.27	82	7.56	122	10.61	162	13.52	202	16.33	242	19.06	282	21.72	322	24.33	362	26.89
3	0.45	43	4.35	83	7.64	123	10.69	163	13.60	203	16.40	243	19.13	283	21.78	323	24.39	363	26.95
4	0.57	44	4.44	84	7.72	124	10.76	164	13.67	204	16.47	244	19.19	284	21.85	324	24.45	364	27.01
5	0.69	45	4.53	85	7.79	125	10.84	165	13.74	205	16.54	245	19.26	285	21.92	325	24.52	365	27.08
6	0.81	46	4.61	86	7.87	126	10.91	166	13.81	206	16.61	246	19.33	286	21.98	326	24.58	366	27.14
7	0.92	47	4.70	87	7.95	127	10.99	167	13.88	207	16.68	247	19.39	287	22.05	327	24.65	367	27.20
8	1.03	48	4.78	88	8.03	128	11.06	168	13.95	208	16.75	248	19.46	288	22.11	328	24.71	368	27.27
9	1.14	49	4.87	89	8.11	129	11.13	169	14.02	209	16.81	249	19.53	289	22.18	329	24.78	369	27.33
10	1.25	50	4.95	90	8.18	130	11.21	170	14.09	210	16.88	250	19.59	290	22.24	330	24.84	370	27.39
11	1.36	51	5.04	91	8.26	131	11.28	171	14.16	211	16.95	251	19.66	291	22.31	331	24.91	371	27.46
12	1.46	52	5.12	92	8.34	132	11.35	172	14.24	212	17.02	252	19.73	292	22.38	332	24.97	372	27.52
13	1.57	53	5.21	93	8.42	133	11.43	173	14.31	213	17.09	253	19.80	293	22.44	333	25.03	373	27.58
14	1.67	54	5.29	94	8.49	134	11.50	174	14.38	214	17.16	254	19.86	294	22.51	334	25.10	374	27.65
15	1.77	55	5.37	95	8.57	135	11.57	175	14.45	215	17.23	255	19.93	295	22.57	335	25.16	375	27.71
16	1.87	56	5.46	96	8.65	136	11.65	176	14.52	216	17.29	256	20.00	296	22.64	336	25.23	376	27.77
17	1.97	57	5.54	97	8.73	137	11.72	177	14.59	217	17.36	257	20.06	297	22.70	337	25.29	377	27.83
18	2.07	58	5.62	98	8.80	138	11.79	178	14.66	218	17.43	258	20.13	298	22.77	338	25.35	378	27.90
19	2.17	59	5.71	99	8.88	139	11.87	179	14.73	219	17.50	259	20.20	299	22.83	339	25.42	379	27.96
20	2.26	60	5.79	100	8.96	140	11.94	180	14.80	220	17.57	260	20.26	300	22.90	340	25.48	380	28.02
21	2.36	61	5.87	101	9.03	141	12.01	181	14.87	221	17.64	261	20.33	301	22.96	341	25.55	381	28.09
22	2.46	62	5.95	102	9.11	142	12.08	182	14.94	222	17.70	262	20.40	302	23.03	342	25.61	382	28.15
23	2.55	63	6.03	103	9.18	143	12.16	183	15.01	223	17.77	263	20.46	303	23.09	343	25.68	383	28.21
24	2.65	64	6.12	104	9.26	144	12.23	184	15.08	224	17.84	264	20.53	304	23.16	344	25.74	384	28.28
25	2.74	65	6.20	105	9.34	145	12.30	185	15.15	225	17.91	265	20.60	305	23.22	345	25.80	385	28.34
26	2.83	66	6.28	106	9.41	146	12.37	186	15.22	226	17.98	266	20.66	306	23.29	346	25.87	386	28.40
27	2.93	67	6.36	107	9.49	147	12.45	187	15.29	227	18.04	267	20.73	307	23.35	347	25.93	387	28.46
28	3.02	68	6.44	108	9.56	148	12.52	188	15.36	228	18.11	268	20.79	308	23.42	348	25.99	388	28.53
29	3.11	69	6.52	109	9.64	149	12.59	189	15.43	229	18.18	269	20.86	309	23.48	349	26.06	389	28.59
30	3.20	70	6.60	110	9.72	150	12.66	190	15.50	230	18.25	270	20.93	310	23.55	350	26.12	390	28.65
31	3.29	71	6.68	111	9.79	151	12.74	191	15.57	231	18.32	271	20.99	311	23.61	351	26.19	391	28.72
32	3.38	72	6.76	112	9.87	152	12.81	192	15.64	232	18.38	272	21.06	312	23.68	352	26.25	392	28.78
33	3.47	73	6.84	113	9.94	153	12.88	193	15.71	233	18.45	273	21.13	313	23.74	353	26.31	393	28.84
34	3.56	74	6.92	114	10.02	154	12.95	194	15.78	234	18.52	274	21.19	314	23.81	354	26.38	394	28.90
35	3.65	75	7.00	115	10.09	155	13.02	195	15.85	235	18.59	275	21.26	315	23.87	355	26.44	395	28.97
36	3.74	76	7.08	116	10.17	156	13.10	196	15.92	236	18.65	276	21.32	316	23.94	356	26.50	396	29.03
37	3.83	77	7.16	117	10.24	157	13.17	197	15.99	237	18.72	277	21.39	317	24.00	357	26.57	397	29.09
38	3.92	78	7.24	118	10.32	158	13.24	198	16.05	238	18.79	278	21.46	318	24.07	358	26.63	398	29.15
39	4.01	79	7.32	119	10.39	159	13.31	199	16.12	239	18.86	279	21.52	319	24.13	359	26.70	399	29.22
40	4.09	80	7.40	120	10.47	160	13.38	200	16.19	240	18.92	280	21.59	320	24.20	360	26.76	400	29.28

Acute Water Quality Standards for dissolved Nickel
 Aquatic life coldwater, warmwater and edw

Hard.	Std.																							
mg/L	ug/L																							
1	10	41	220	81	392	121	550	161	701	201	845	241	985	281	1122	321	1256	361	1387					
2	17	42	225	82	396	122	554	162	704	202	849	242	989	282	1126	322	1259	362	1390					
3	24	43	229	83	400	123	558	163	708	203	852	243	992	283	1129	323	1263	363	1394					
4	31	44	234	84	404	124	562	164	712	204	856	244	996	284	1132	324	1266	364	1397					
5	37	45	238	85	408	125	566	165	715	205	859	245	999	285	1136	325	1269	365	1400					
6	43	46	243	86	412	126	569	166	719	206	863	246	1003	286	1139	326	1272	366	1403					
7	49	47	247	87	416	127	573	167	723	207	867	247	1006	287	1142	327	1276	367	1407					
8	55	48	252	88	420	128	577	168	726	208	870	248	1010	288	1146	328	1279	368	1410					
9	61	49	256	89	424	129	581	169	730	209	874	249	1013	289	1149	329	1282	369	1413					
10	67	50	260	90	428	130	585	170	734	210	877	250	1017	290	1153	330	1286	370	1416					
11	72	51	265	91	432	131	588	171	737	211	881	251	1020	291	1156	331	1289	371	1420					
12	78	52	269	92	436	132	592	172	741	212	884	252	1023	292	1159	332	1292	372	1423					
13	83	53	274	93	440	133	596	173	744	213	888	253	1027	293	1163	333	1296	373	1426					
14	89	54	278	94	444	134	600	174	748	214	891	254	1030	294	1166	334	1299	374	1429					
15	94	55	282	95	448	135	604	175	752	215	895	255	1034	295	1169	335	1302	375	1433					
16	99	56	287	96	452	136	607	176	755	216	898	256	1037	296	1173	336	1305	376	1436					
17	105	57	291	97	456	137	611	177	759	217	902	257	1041	297	1176	337	1309	377	1439					
18	110	58	295	98	460	138	615	178	763	218	905	258	1044	298	1179	338	1312	378	1442					
19	115	59	300	99	464	139	619	179	766	219	909	259	1047	299	1183	339	1315	379	1445					
20	120	60	304	100	468	140	622	180	770	220	912	260	1051	300	1186	340	1319	380	1449					
21	125	61	308	101	472	141	626	181	774	221	916	261	1054	301	1189	341	1322	381	1452					
22	130	62	312	102	476	142	630	182	777	222	919	262	1058	302	1193	342	1325	382	1455					
23	135	63	317	103	480	143	634	183	781	223	923	263	1061	303	1196	343	1328	383	1458					
24	140	64	321	104	484	144	637	184	784	224	926	264	1064	304	1199	344	1332	384	1462					
25	145	65	325	105	488	145	641	185	788	225	930	265	1068	305	1203	345	1335	385	1465					
26	150	66	329	106	492	146	645	186	792	226	933	266	1071	306	1206	346	1338	386	1468					
27	155	67	334	107	496	147	649	187	795	227	937	267	1075	307	1209	347	1341	387	1471					
28	159	68	338	108	500	148	652	188	799	228	940	268	1078	308	1213	348	1345	388	1474					
29	164	69	342	109	504	149	656	189	802	229	944	269	1082	309	1216	349	1348	389	1478					
30	169	70	346	110	508	150	660	190	806	230	947	270	1085	310	1219	350	1351	390	1481					
31	174	71	350	111	511	151	664	191	810	231	951	271	1088	311	1223	351	1355	391	1484					
32	179	72	355	112	515	152	667	192	813	232	954	272	1092	312	1226	352	1358	392	1487					
33	183	73	359	113	519	153	671	193	817	233	958	273	1095	313	1229	353	1361	393	1490					
34	188	74	363	114	523	154	675	194	820	234	961	274	1099	314	1233	354	1364	394	1494					
35	193	75	367	115	527	155	678	195	824	235	965	275	1102	315	1236	355	1368	395	1497					
36	197	76	371	116	531	156	682	196	827	236	968	276	1105	316	1239	356	1371	396	1500					
37	202	77	375	117	535	157	686	197	831	237	972	277	1109	317	1243	357	1374	397	1503					
38	207	78	379	118	539	158	689	198	835	238	975	278	1112	318	1246	358	1377	398	1506					
39	211	79	384	119	542	159	693	199	838	239	979	279	1115	319	1249	359	1381	399	1510					
40	216	80	388	120	546	160	697	200	842	240	982	280	1119	320	1253	360	1384	400	1513					

Acute Water Quality Standards for dissolved Nickel

Aquatic life ephemeral

Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.														
mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L														
1	85	41	1956	81	3479	121	4886	161	6221	201	7506	241	8752	281	9966	321	11154	361	12319		
2	152	42	1996	82	3516	122	4920	162	6254	202	7538	242	8783	282	9996	322	11183	362	12348		
3	214	43	2036	83	3552	123	4954	163	6287	203	7569	243	8813	283	10026	323	11213	363	12377		
4	273	44	2076	84	3588	124	4988	164	6319	204	7601	244	8844	284	10056	324	11242	364	12405		
5	330	45	2116	85	3624	125	5022	165	6352	205	7632	245	8875	285	10086	325	11271	365	12434		
6	385	46	2156	86	3660	126	5056	166	6385	206	7664	246	8905	286	10116	326	11301	366	12463		
7	438	47	2195	87	3696	127	5090	167	6417	207	7695	247	8936	287	10146	327	11330	367	12492		
8	491	48	2235	88	3732	128	5124	168	6450	208	7727	248	8967	288	10176	328	11359	368	12521		
9	542	49	2274	89	3768	129	5158	169	6482	209	7758	249	8997	289	10206	329	11389	369	12549		
10	593	50	2313	90	3804	130	5192	170	6514	210	7790	250	9028	290	10235	330	11418	370	12578		
11	643	51	2352	91	3839	131	5226	171	6547	211	7821	251	9058	291	10265	331	11447	371	12607		
12	692	52	2391	92	3875	132	5259	172	6579	212	7852	252	9089	292	10295	332	11476	372	12636		
13	740	53	2430	93	3911	133	5293	173	6612	213	7884	253	9119	293	10325	333	11506	373	12664		
14	788	54	2469	94	3946	134	5327	174	6644	214	7915	254	9150	294	10355	334	11535	374	12693		
15	835	55	2508	95	3982	135	5360	175	6676	215	7946	255	9180	295	10385	335	11564	375	12722		
16	882	56	2546	96	4017	136	5394	176	6708	216	7978	256	9211	296	10414	336	11593	376	12751		
17	929	57	2585	97	4053	137	5427	177	6741	217	8009	257	9241	297	10444	337	11622	377	12779		
18	975	58	2623	98	4088	138	5461	178	6773	218	8040	258	9272	298	10474	338	11652	378	12808		
19	1020	59	2661	99	4123	139	5494	179	6805	219	8071	259	9302	299	10504	339	11681	379	12837		
20	1066	60	2699	100	4158	140	5528	180	6837	220	8102	260	9332	300	10533	340	11710	380	12865		
21	1110	61	2737	101	4193	141	5561	181	6869	221	8133	261	9363	301	10563	341	11739	381	12894		
22	1155	62	2775	102	4229	142	5594	182	6901	222	8165	262	9393	302	10593	342	11768	382	12922		
23	1199	63	2813	103	4264	143	5628	183	6934	223	8196	263	9423	303	10622	343	11797	383	12951		
24	1243	64	2851	104	4299	144	5661	184	6966	224	8227	264	9454	304	10652	344	11826	384	12980		
25	1287	65	2888	105	4334	145	5694	185	6998	225	8258	265	9484	305	10682	345	11855	385	13008		
26	1330	66	2926	106	4368	146	5727	186	7030	226	8289	266	9514	306	10711	346	11884	386	13037		
27	1374	67	2963	107	4403	147	5761	187	7062	227	8320	267	9544	307	10741	347	11913	387	13065		
28	1416	68	3001	108	4438	148	5794	188	7093	228	8351	268	9575	308	10770	348	11943	388	13094		
29	1459	69	3038	109	4473	149	5827	189	7125	229	8382	269	9605	309	10800	349	11972	389	13123		
30	1502	70	3075	110	4508	150	5860	190	7157	230	8413	270	9635	310	10830	350	12001	390	13151		
31	1544	71	3112	111	4542	151	5893	191	7189	231	8444	271	9665	311	10859	351	12030	391	13180		
32	1586	72	3149	112	4577	152	5926	192	7221	232	8475	272	9695	312	10889	352	12059	392	13208		
33	1628	73	3186	113	4611	153	5959	193	7253	233	8506	273	9726	313	10918	353	12088	393	13237		
34	1669	74	3223	114	4646	154	5992	194	7285	234	8536	274	9756	314	10948	354	12116	394	13265		
35	1711	75	3260	115	4680	155	6025	195	7316	235	8567	275	9786	315	10977	355	12145	395	13294		
36	1752	76	3297	116	4715	156	6058	196	7348	236	8598	276	9816	316	11007	356	12174	396	13322		
37	1793	77	3333	117	4749	157	6090	197	7380	237	8629	277	9846	317	11036	357	12203	397	13350		
38	1834	78	3370	118	4783	158	6123	198	7411	238	8660	278	9876	318	11066	358	12232	398	13379		
39	1875	79	3407	119	4818	159	6156	199	7443	239	8691	279	9906	319	11095	359	12261	399	13407		
40	1915	80	3443	120	4852	160	6189	200	7475	240	8721	280	9936	320	11124	360	12290	400	13436		

Chronic Water Quality Standards for dissolved Nickel
 Aquatic life coldwater, warmwater and edw

\	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.								
mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L
1	1.06	41	24.46	81	43.51	121	61.11	161	77.81	201	93.88	241	109.46	281	124.64	321	139.50	361	154.07
2	1.90	42	24.96	82	43.97	122	61.53	162	78.22	202	94.27	242	109.84	282	125.02	322	139.86	362	154.43
3	2.68	43	25.47	83	44.42	123	61.96	163	78.63	203	94.67	243	110.23	283	125.39	323	140.23	363	154.79
4	3.42	44	25.97	84	44.87	124	62.39	164	79.03	204	95.06	244	110.61	284	125.77	324	140.60	364	155.15
5	4.12	45	26.47	85	45.33	125	62.81	165	79.44	205	95.46	245	110.99	285	126.14	325	140.96	365	155.51
6	4.81	46	26.96	86	45.78	126	63.24	166	79.85	206	95.85	246	111.38	286	126.52	326	141.33	366	155.87
7	5.48	47	27.46	87	46.23	127	63.66	167	80.26	207	96.24	247	111.76	287	126.89	327	141.70	367	156.23
8	6.14	48	27.95	88	46.68	128	64.09	168	80.66	208	96.64	248	112.14	288	127.26	328	142.07	368	156.59
9	6.78	49	28.44	89	47.12	129	64.51	169	81.07	209	97.03	249	112.52	289	127.64	329	142.43	369	156.95
10	7.41	50	28.93	90	47.57	130	64.93	170	81.47	210	97.42	250	112.91	290	128.01	330	142.80	370	157.31
11	8.04	51	29.42	91	48.02	131	65.35	171	81.88	211	97.81	251	113.29	291	128.38	331	143.16	371	157.67
12	8.65	52	29.91	92	48.46	132	65.78	172	82.28	212	98.21	252	113.67	292	128.76	332	143.53	372	158.03
13	9.26	53	30.39	93	48.91	133	66.20	173	82.69	213	98.60	253	114.05	293	129.13	333	143.90	373	158.39
14	9.86	54	30.88	94	49.35	134	66.62	174	83.09	214	98.99	254	114.43	294	129.50	334	144.26	374	158.75
15	10.45	55	31.36	95	49.80	135	67.04	175	83.50	215	99.38	255	114.81	295	129.88	335	144.63	375	159.11
16	11.03	56	31.84	96	50.24	136	67.46	176	83.90	216	99.77	256	115.19	296	130.25	336	144.99	376	159.47
17	11.61	57	32.32	97	50.68	137	67.88	177	84.30	217	100.16	257	115.57	297	130.62	337	145.36	377	159.82
18	12.19	58	32.80	98	51.13	138	68.30	178	84.71	218	100.55	258	115.95	298	130.99	338	145.72	378	160.18
19	12.76	59	33.28	99	51.57	139	68.71	179	85.11	219	100.94	259	116.33	299	131.36	339	146.09	379	160.54
20	13.33	60	33.76	100	52.01	140	69.13	180	85.51	220	101.33	260	116.71	300	131.74	340	146.45	380	160.90
21	13.89	61	34.23	101	52.45	141	69.55	181	85.91	221	101.72	261	117.09	301	132.11	341	146.81	381	161.26
22	14.45	62	34.71	102	52.89	142	69.97	182	86.31	222	102.11	262	117.47	302	132.48	342	147.18	382	161.62
23	15.00	63	35.18	103	53.32	143	70.38	183	86.71	223	102.50	263	117.85	303	132.85	343	147.54	383	161.97
24	15.55	64	35.65	104	53.76	144	70.80	184	87.12	224	102.89	264	118.23	304	133.22	344	147.91	384	162.33
25	16.10	65	36.12	105	54.20	145	71.22	185	87.52	225	103.28	265	118.61	305	133.59	345	148.27	385	162.69
26	16.64	66	36.59	106	54.63	146	71.63	186	87.92	226	103.67	266	118.99	306	133.96	346	148.63	386	163.05
27	17.18	67	37.06	107	55.07	147	72.05	187	88.32	227	104.05	267	119.37	307	134.33	347	149.00	387	163.40
28	17.72	68	37.53	108	55.51	148	72.46	188	88.71	228	104.44	268	119.75	308	134.70	348	149.36	388	163.76
29	18.25	69	37.99	109	55.94	149	72.87	189	89.11	229	104.83	269	120.12	309	135.07	349	149.72	389	164.12
30	18.78	70	38.46	110	56.37	150	73.29	190	89.51	230	105.22	270	120.50	310	135.44	350	150.09	390	164.47
31	19.31	71	38.92	111	56.81	151	73.70	191	89.91	231	105.60	271	120.88	311	135.81	351	150.45	391	164.83
32	19.83	72	39.39	112	57.24	152	74.11	192	90.31	232	105.99	272	121.26	312	136.18	352	150.81	392	165.19
33	20.36	73	39.85	113	57.67	153	74.53	193	90.71	233	106.38	273	121.63	313	136.55	353	151.17	393	165.54
34	20.88	74	40.31	114	58.10	154	74.94	194	91.10	234	106.76	274	122.01	314	136.92	354	151.54	394	165.90
35	21.40	75	40.77	115	58.53	155	75.35	195	91.50	235	107.15	275	122.39	315	137.29	355	151.90	395	166.26
36	21.91	76	41.23	116	58.96	156	75.76	196	91.90	236	107.53	276	122.76	316	137.66	356	152.26	396	166.61
37	22.43	77	41.69	117	59.39	157	76.17	197	92.29	237	107.92	277	123.14	317	138.02	357	152.62	397	166.97
38	22.94	78	42.15	118	59.82	158	76.58	198	92.69	238	108.30	278	123.52	318	138.39	358	152.98	398	167.32
39	23.45	79	42.60	119	60.25	159	76.99	199	93.09	239	108.69	279	123.89	319	138.76	359	153.34	399	167.68
40	23.96	80	43.06	120	60.68	160	77.40	200	93.48	240	109.07	280	124.27	320	139.13	360	153.71	400	168.04

Acute Water Quality Standards for dissolved Lead
 Aquatic life coldwater, warmwater and edw

Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.
mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L
1	0.34	41	24.17	81	51.30	121	79.43	161	108.02	201	136.86	241	165.82	281	194.81	321	223.79	361	252.72
2	0.76	42	24.82	82	52.00	122	80.14	162	108.74	202	137.59	242	166.55	282	195.54	322	224.52	362	253.44
3	1.22	43	25.48	83	52.69	123	80.85	163	109.46	203	138.31	243	167.27	283	196.26	323	225.24	363	254.16
4	1.71	44	26.14	84	53.39	124	81.56	164	110.18	204	139.03	244	167.99	284	196.99	324	225.96	364	254.89
5	2.21	45	26.81	85	54.08	125	82.27	165	110.90	205	139.76	245	168.72	285	197.71	325	226.69	365	255.61
6	2.73	46	27.47	86	54.78	126	82.98	166	111.62	206	140.48	246	169.44	286	198.44	326	227.41	366	256.33
7	3.26	47	28.13	87	55.48	127	83.69	167	112.34	207	141.20	247	170.17	287	199.16	327	228.14	367	257.05
8	3.80	48	28.80	88	56.17	128	84.41	168	113.06	208	141.93	248	170.89	288	199.89	328	228.86	368	257.77
9	4.35	49	29.47	89	56.87	129	85.12	169	113.78	209	142.65	249	171.62	289	200.61	329	229.58	369	258.50
10	4.91	50	30.14	90	57.57	130	85.83	170	114.50	210	143.37	250	172.34	290	201.34	330	230.31	370	259.22
11	5.47	51	30.81	91	58.27	131	86.54	171	115.22	211	144.10	251	173.07	291	202.06	331	231.03	371	259.94
12	6.04	52	31.48	92	58.97	132	87.26	172	115.94	212	144.82	252	173.79	292	202.79	332	231.75	372	260.66
13	6.62	53	32.15	93	59.67	133	87.97	173	116.66	213	145.54	253	174.52	293	203.51	333	232.48	373	261.38
14	7.20	54	32.82	94	60.37	134	88.68	174	117.38	214	146.27	254	175.24	294	204.24	334	233.20	374	262.10
15	7.79	55	33.49	95	61.07	135	89.40	175	118.10	215	146.99	255	175.97	295	204.96	335	233.92	375	262.83
16	8.38	56	34.17	96	61.77	136	90.11	176	118.82	216	147.71	256	176.69	296	205.69	336	234.65	376	263.55
17	8.98	57	34.84	97	62.47	137	90.83	177	119.54	217	148.44	257	177.42	297	206.41	337	235.37	377	264.27
18	9.58	58	35.52	98	63.18	138	91.54	178	120.26	218	149.16	258	178.14	298	207.13	338	236.09	378	264.99
19	10.18	59	36.20	99	63.88	139	92.25	179	120.98	219	149.89	259	178.87	299	207.86	339	236.82	379	265.71
20	10.79	60	36.88	100	64.58	140	92.97	180	121.70	220	150.61	260	179.59	300	208.58	340	237.54	380	266.43
21	11.40	61	37.56	101	65.28	141	93.68	181	122.42	221	151.33	261	180.32	301	209.31	341	238.26	381	267.15
22	12.02	62	38.24	102	65.99	142	94.40	182	123.14	222	152.06	262	181.04	302	210.03	342	238.99	382	267.88
23	12.64	63	38.92	103	66.69	143	95.12	183	123.87	223	152.78	263	181.77	303	210.76	343	239.71	383	268.60
24	13.26	64	39.60	104	67.40	144	95.83	184	124.59	224	153.51	264	182.49	304	211.48	344	240.43	384	269.32
25	13.88	65	40.28	105	68.10	145	96.55	185	125.31	225	154.23	265	183.22	305	212.21	345	241.16	385	270.04
26	14.51	66	40.97	106	68.81	146	97.26	186	126.03	226	154.95	266	183.94	306	212.93	346	241.88	386	270.76
27	15.14	67	41.65	107	69.51	147	97.98	187	126.75	227	155.68	267	184.67	307	213.65	347	242.60	387	271.48
28	15.77	68	42.33	108	70.22	148	98.70	188	127.47	228	156.40	268	185.39	308	214.38	348	243.33	388	272.20
29	16.40	69	43.02	109	70.93	149	99.41	189	128.20	229	157.13	269	186.12	309	215.10	349	244.05	389	272.92
30	17.04	70	43.71	110	71.63	150	100.13	190	128.92	230	157.85	270	186.84	310	215.83	350	244.77	390	273.64
31	17.68	71	44.39	111	72.34	151	100.85	191	129.64	231	158.58	271	187.57	311	216.55	351	245.49	391	274.36
32	18.32	72	45.08	112	73.05	152	101.56	192	130.36	232	159.30	272	188.29	312	217.28	352	246.22	392	275.08
33	18.96	73	45.77	113	73.75	153	102.28	193	131.08	233	160.02	273	189.02	313	218.00	353	246.94	393	275.80
34	19.61	74	46.46	114	74.46	154	103.00	194	131.81	234	160.75	274	189.74	314	218.72	354	247.66	394	276.52
35	20.25	75	47.15	115	75.17	155	103.72	195	132.53	235	161.47	275	190.47	315	219.45	355	248.38	395	277.25
36	20.90	76	47.84	116	75.88	156	104.43	196	133.25	236	162.20	276	191.19	316	220.17	356	249.11	396	277.97
37	21.55	77	48.53	117	76.59	157	105.15	197	133.97	237	162.92	277	191.92	317	220.90	357	249.83	397	278.69
38	22.20	78	49.22	118	77.30	158	105.87	198	134.70	238	163.65	278	192.64	318	221.62	358	250.55	398	279.41
39	22.86	79	49.92	119	78.01	159	106.59	199	135.42	239	164.37	279	193.36	319	222.34	359	251.27	399	280.13
40	23.51	80	50.61	120	78.72	160	107.31	200	136.14	240	165.10	280	194.09	320	223.07	360	252.00	400	280.85

Acute Water Quality Standards for dissolved Lead
Aquatic life ephemeral

Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.
mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L
1	0.72	41	51.00	81	108.27	121	167.63	161	227.98	201	288.85	241	349.96	281	411.15	321	472.30	361	533.35		
2	1.61	42	52.39	82	109.74	122	169.13	162	229.50	202	290.37	242	351.49	282	412.68	322	473.83	362	534.87		
3	2.58	43	53.78	83	111.21	123	170.63	163	231.01	203	291.90	243	353.02	283	414.21	323	475.36	363	536.40		
4	3.61	44	55.18	84	112.67	124	172.13	164	232.53	204	293.42	244	354.54	284	415.73	324	476.89	364	537.92		
5	4.67	45	56.57	85	114.14	125	173.63	165	234.05	205	294.95	245	356.07	285	417.26	325	478.41	365	539.45		
6	5.76	46	57.97	86	115.61	126	175.13	166	235.57	206	296.48	246	357.60	286	418.79	326	479.94	366	540.97		
7	6.88	47	59.38	87	117.08	127	176.63	167	237.08	207	298.00	247	359.13	287	420.32	327	481.47	367	542.49		
8	8.02	48	60.78	88	118.55	128	178.13	168	238.60	208	299.53	248	360.66	288	421.85	328	483.00	368	544.02		
9	9.18	49	62.19	89	120.03	129	179.64	169	240.12	209	301.05	249	362.19	289	423.38	329	484.52	369	545.54		
10	10.35	50	63.60	90	121.50	130	181.14	170	241.64	210	302.58	250	363.72	290	424.91	330	486.05	370	547.06		
11	11.54	51	65.01	91	122.98	131	182.65	171	243.16	211	304.11	251	365.25	291	426.44	331	487.58	371	548.59		
12	12.75	52	66.43	92	124.45	132	184.15	172	244.68	212	305.64	252	366.78	292	427.97	332	489.10	372	550.11		
13	13.97	53	67.85	93	125.93	133	185.66	173	246.20	213	307.16	253	368.31	293	429.50	333	490.63	373	551.63		
14	15.20	54	69.26	94	127.41	134	187.16	174	247.72	214	308.69	254	369.84	294	431.03	334	492.16	374	553.16		
15	16.44	55	70.69	95	128.89	135	188.67	175	249.24	215	310.22	255	371.37	295	432.56	335	493.68	375	554.68		
16	17.69	56	72.11	96	130.37	136	190.17	176	250.76	216	311.74	256	372.90	296	434.09	336	495.21	376	556.20		
17	18.95	57	73.54	97	131.85	137	191.68	177	252.28	217	313.27	257	374.43	297	435.62	337	496.74	377	557.72		
18	20.21	58	74.96	98	133.33	138	193.19	178	253.80	218	314.80	258	375.96	298	437.15	338	498.26	378	559.25		
19	21.49	59	76.39	99	134.81	139	194.70	179	255.32	219	316.33	259	377.49	299	438.68	339	499.79	379	560.77		
20	22.77	60	77.83	100	136.30	140	196.21	180	256.85	220	317.85	260	379.02	300	440.20	340	501.32	380	562.29		
21	24.07	61	79.26	101	137.78	141	197.72	181	258.37	221	319.38	261	380.55	301	441.73	341	502.84	381	563.81		
22	25.36	62	80.70	102	139.27	142	199.23	182	259.89	222	320.91	262	382.08	302	443.26	342	504.37	382	565.34		
23	26.67	63	82.13	103	140.75	143	200.74	183	261.41	223	322.44	263	383.61	303	444.79	343	505.90	383	566.86		
24	27.98	64	83.57	104	142.24	144	202.25	184	262.93	224	323.97	264	385.14	304	446.32	344	507.42	384	568.38		
25	29.30	65	85.01	105	143.73	145	203.76	185	264.46	225	325.49	265	386.67	305	447.85	345	508.95	385	569.90		
26	30.62	66	86.46	106	145.21	146	205.27	186	265.98	226	327.02	266	388.20	306	449.38	346	510.47	386	571.42		
27	31.95	67	87.90	107	146.70	147	206.78	187	267.50	227	328.55	267	389.73	307	450.91	347	512.00	387	572.94		
28	33.28	68	89.35	108	148.19	148	208.29	188	269.03	228	330.08	268	391.26	308	452.44	348	513.53	388	574.47		
29	34.62	69	90.79	109	149.68	149	209.80	189	270.55	229	331.61	269	392.79	309	453.96	349	515.05	389	575.99		
30	35.96	70	92.24	110	151.18	150	211.32	190	272.07	230	333.14	270	394.32	310	455.49	350	516.58	390	577.51		
31	37.31	71	93.69	111	152.67	151	212.83	191	273.60	231	334.67	271	395.85	311	457.02	351	518.10	391	579.03		
32	38.66	72	95.14	112	154.16	152	214.34	192	275.12	232	336.19	272	397.38	312	458.55	352	519.63	392	580.55		
33	40.02	73	96.60	113	155.65	153	215.86	193	276.65	233	337.72	273	398.91	313	460.08	353	521.15	393	582.07		
34	41.38	74	98.05	114	157.15	154	217.37	194	278.17	234	339.25	274	400.44	314	461.61	354	522.68	394	583.59		
35	42.74	75	99.51	115	158.64	155	218.89	195	279.69	235	340.78	275	401.97	315	463.13	355	524.20	395	585.11		
36	44.11	76	100.97	116	160.14	156	220.40	196	281.22	236	342.31	276	403.50	316	464.66	356	525.73	396	586.63		
37	45.48	77	102.43	117	161.64	157	221.92	197	282.74	237	343.84	277	405.03	317	466.19	357	527.25	397	588.15		
38	46.86	78	103.89	118	163.13	158	223.43	198	284.27	238	345.37	278	406.56	318	467.72	358	528.78	398	589.67		
39	48.24	79	105.35	119	164.63	159	224.95	199	285.79	239	346.90	279	408.09	319	469.25	359	530.30	399	591.19		
40	49.62	80	106.81	120	166.13	160	226.46	200	287.32	240	348.43	280	409.62	320	470.77	360	531.83	400	592.71		

Chronic Water Quality Standards for dissolved Lead
Aquatic life coldwater, warmwater and edw

Hard.	Std.																		
mg/L	ug/L																		
1	0.01	41	0.94	81	2.00	121	3.10	161	4.21	201	5.33	241	6.46	281	7.59	321	8.72	361	9.85
2	0.03	42	0.97	82	2.03	122	3.12	162	4.24	202	5.36	242	6.49	282	7.62	322	8.75	362	9.88
3	0.05	43	0.99	83	2.05	123	3.15	163	4.27	203	5.39	243	6.52	283	7.65	323	8.78	363	9.90
4	0.07	44	1.02	84	2.08	124	3.18	164	4.29	204	5.42	244	6.55	284	7.68	324	8.81	364	9.93
5	0.09	45	1.04	85	2.11	125	3.21	165	4.32	205	5.45	245	6.57	285	7.70	325	8.83	365	9.96
6	0.11	46	1.07	86	2.13	126	3.23	166	4.35	206	5.47	246	6.60	286	7.73	326	8.86	366	9.99
7	0.13	47	1.10	87	2.16	127	3.26	167	4.38	207	5.50	247	6.63	287	7.76	327	8.89	367	10.02
8	0.15	48	1.12	88	2.19	128	3.29	168	4.41	208	5.53	248	6.66	288	7.79	328	8.92	368	10.05
9	0.17	49	1.15	89	2.22	129	3.32	169	4.43	209	5.56	249	6.69	289	7.82	329	8.95	369	10.07
10	0.19	50	1.17	90	2.24	130	3.34	170	4.46	210	5.59	250	6.72	290	7.85	330	8.97	370	10.10
11	0.21	51	1.20	91	2.27	131	3.37	171	4.49	211	5.62	251	6.74	291	7.87	331	9.00	371	10.13
12	0.24	52	1.23	92	2.30	132	3.40	172	4.52	212	5.64	252	6.77	292	7.90	332	9.03	372	10.16
13	0.26	53	1.25	93	2.33	133	3.43	173	4.55	213	5.67	253	6.80	293	7.93	333	9.06	373	10.19
14	0.28	54	1.28	94	2.35	134	3.46	174	4.57	214	5.70	254	6.83	294	7.96	334	9.09	374	10.21
15	0.30	55	1.31	95	2.38	135	3.48	175	4.60	215	5.73	255	6.86	295	7.99	335	9.12	375	10.24
16	0.33	56	1.33	96	2.41	136	3.51	176	4.63	216	5.76	256	6.89	296	8.02	336	9.14	376	10.27
17	0.35	57	1.36	97	2.43	137	3.54	177	4.66	217	5.78	257	6.91	297	8.04	337	9.17	377	10.30
18	0.37	58	1.38	98	2.46	138	3.57	178	4.69	218	5.81	258	6.94	298	8.07	338	9.20	378	10.33
19	0.40	59	1.41	99	2.49	139	3.60	179	4.71	219	5.84	259	6.97	299	8.10	339	9.23	379	10.35
20	0.42	60	1.44	100	2.52	140	3.62	180	4.74	220	5.87	260	7.00	300	8.13	340	9.26	380	10.38
21	0.44	61	1.46	101	2.54	141	3.65	181	4.77	221	5.90	261	7.03	301	8.16	341	9.28	381	10.41
22	0.47	62	1.49	102	2.57	142	3.68	182	4.80	222	5.93	262	7.05	302	8.18	342	9.31	382	10.44
23	0.49	63	1.52	103	2.60	143	3.71	183	4.83	223	5.95	263	7.08	303	8.21	343	9.34	383	10.47
24	0.52	64	1.54	104	2.63	144	3.73	184	4.85	224	5.98	264	7.11	304	8.24	344	9.37	384	10.49
25	0.54	65	1.57	105	2.65	145	3.76	185	4.88	225	6.01	265	7.14	305	8.27	345	9.40	385	10.52
26	0.57	66	1.60	106	2.68	146	3.79	186	4.91	226	6.04	266	7.17	306	8.30	346	9.43	386	10.55
27	0.59	67	1.62	107	2.71	147	3.82	187	4.94	227	6.07	267	7.20	307	8.33	347	9.45	387	10.58
28	0.61	68	1.65	108	2.74	148	3.85	188	4.97	228	6.09	268	7.22	308	8.35	348	9.48	388	10.61
29	0.64	69	1.68	109	2.76	149	3.87	189	5.00	229	6.12	269	7.25	309	8.38	349	9.51	389	10.64
30	0.66	70	1.70	110	2.79	150	3.90	190	5.02	230	6.15	270	7.28	310	8.41	350	9.54	390	10.66
31	0.69	71	1.73	111	2.82	151	3.93	191	5.05	231	6.18	271	7.31	311	8.44	351	9.57	391	10.69
32	0.71	72	1.76	112	2.85	152	3.96	192	5.08	232	6.21	272	7.34	312	8.47	352	9.59	392	10.72
33	0.74	73	1.78	113	2.87	153	3.99	193	5.11	233	6.24	273	7.37	313	8.50	353	9.62	393	10.75
34	0.76	74	1.81	114	2.90	154	4.01	194	5.14	234	6.26	274	7.39	314	8.52	354	9.65	394	10.78
35	0.79	75	1.84	115	2.93	155	4.04	195	5.16	235	6.29	275	7.42	315	8.55	355	9.68	395	10.80
36	0.81	76	1.86	116	2.96	156	4.07	196	5.19	236	6.32	276	7.45	316	8.58	356	9.71	396	10.83
37	0.84	77	1.89	117	2.98	157	4.10	197	5.22	237	6.35	277	7.48	317	8.61	357	9.74	397	10.86
38	0.87	78	1.92	118	3.01	158	4.13	198	5.25	238	6.38	278	7.51	318	8.64	358	9.76	398	10.89
39	0.89	79	1.95	119	3.04	159	4.15	199	5.28	239	6.41	279	7.54	319	8.66	359	9.79	399	10.92
40	0.92	80	1.97	120	3.07	160	4.18	200	5.31	240	6.43	280	7.56	320	8.69	360	9.82	400	10.94

Water Quality Standards for dissolved Silver
 Aquatic life coldwater, warmwater, edw and ephemeral

Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.
mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L
1	0.001	41	0.74	81	2.40	121	4.79	161	7.83	201	11.46	241	15.66	281	20.40	321	25.65	361	31.39				
2	0.004	42	0.78	82	2.45	122	4.86	162	7.91	202	11.56	242	15.78	282	20.52	322	25.78	362	31.54				
3	0.008	43	0.81	83	2.50	123	4.93	163	7.99	203	11.66	243	15.89	283	20.65	323	25.92	363	31.69				
4	0.01	44	0.84	84	2.56	124	4.99	164	8.08	204	11.76	244	16.00	284	20.77	324	26.06	364	31.84				
5	0.02	45	0.87	85	2.61	125	5.06	165	8.16	205	11.86	245	16.11	285	20.90	325	26.20	365	31.99				
6	0.03	46	0.91	86	2.66	126	5.13	166	8.25	206	11.96	246	16.23	286	21.03	326	26.34	366	32.14				
7	0.04	47	0.94	87	2.72	127	5.20	167	8.33	207	12.06	247	16.34	287	21.15	327	26.48	367	32.29				
8	0.04	48	0.98	88	2.77	128	5.27	168	8.42	208	12.16	248	16.45	288	21.28	328	26.61	368	32.44				
9	0.05	49	1.01	89	2.82	129	5.35	169	8.51	209	12.26	249	16.57	289	21.41	329	26.75	369	32.59				
10	0.07	50	1.05	90	2.88	130	5.42	170	8.59	210	12.36	250	16.68	290	21.53	330	26.89	370	32.74				
11	0.08	51	1.08	91	2.93	131	5.49	171	8.68	211	12.46	251	16.80	291	21.66	331	27.03	371	32.90				
12	0.09	52	1.12	92	2.99	132	5.56	172	8.77	212	12.56	252	16.91	292	21.79	332	27.18	372	33.05				
13	0.10	53	1.16	93	3.05	133	5.63	173	8.86	213	12.67	253	17.03	293	21.92	333	27.32	373	33.20				
14	0.12	54	1.20	94	3.10	134	5.71	174	8.94	214	12.77	254	17.14	294	22.05	334	27.46	374	33.35				
15	0.13	55	1.23	95	3.16	135	5.78	175	9.03	215	12.87	255	17.26	295	22.18	335	27.60	375	33.51				
16	0.15	56	1.27	96	3.22	136	5.85	176	9.12	216	12.97	256	17.38	296	22.31	336	27.74	376	33.66				
17	0.16	57	1.31	97	3.27	137	5.93	177	9.21	217	13.08	257	17.49	297	22.44	337	27.88	377	33.82				
18	0.18	58	1.35	98	3.33	138	6.00	178	9.30	218	13.18	258	17.61	298	22.57	338	28.03	378	33.97				
19	0.20	59	1.39	99	3.39	139	6.08	179	9.39	219	13.29	259	17.73	299	22.70	339	28.17	379	34.13				
20	0.22	60	1.43	100	3.45	140	6.15	180	9.48	220	13.39	260	17.85	300	22.83	340	28.31	380	34.28				
21	0.24	61	1.47	101	3.51	141	6.23	181	9.57	221	13.50	261	17.97	301	22.96	341	28.45	381	34.44				
22	0.26	62	1.52	102	3.57	142	6.31	182	9.66	222	13.60	262	18.08	302	23.09	342	28.60	382	34.59				
23	0.28	63	1.56	103	3.63	143	6.38	183	9.76	223	13.71	263	18.20	303	23.22	343	28.74	383	34.75				
24	0.30	64	1.60	104	3.69	144	6.46	184	9.85	224	13.81	264	18.32	304	23.35	344	28.89	384	34.90				
25	0.32	65	1.64	105	3.75	145	6.54	185	9.94	225	13.92	265	18.44	305	23.49	345	29.03	385	35.06				
26	0.34	66	1.69	106	3.81	146	6.61	186	10.03	226	14.02	266	18.56	306	23.62	346	29.18	386	35.22				
27	0.36	67	1.73	107	3.88	147	6.69	187	10.12	227	14.13	267	18.68	307	23.75	347	29.32	387	35.37				
28	0.39	68	1.78	108	3.94	148	6.77	188	10.22	228	14.24	268	18.80	308	23.89	348	29.47	388	35.53				
29	0.41	69	1.82	109	4.00	149	6.85	189	10.31	229	14.35	269	18.92	309	24.02	349	29.61	389	35.69				
30	0.43	70	1.87	110	4.06	150	6.93	190	10.41	230	14.45	270	19.04	310	24.15	350	29.76	390	35.85				
31	0.46	71	1.91	111	4.13	151	7.01	191	10.50	231	14.56	271	19.17	311	24.29	351	29.91	391	36.01				
32	0.49	72	1.96	112	4.19	152	7.09	192	10.59	232	14.67	272	19.29	312	24.42	352	30.05	392	36.16				
33	0.51	73	2.01	113	4.26	153	7.17	193	10.69	233	14.78	273	19.41	313	24.56	353	30.20	393	36.32				
34	0.54	74	2.06	114	4.32	154	7.25	194	10.79	234	14.89	274	19.53	314	24.69	354	30.35	394	36.48				
35	0.57	75	2.10	115	4.39	155	7.33	195	10.88	235	15.00	275	19.65	315	24.83	355	30.49	395	36.64				
36	0.60	76	2.15	116	4.45	156	7.41	196	10.98	236	15.11	276	19.78	316	24.96	356	30.64	396	36.80				
37	0.62	77	2.20	117	4.52	157	7.49	197	11.07	237	15.22	277	19.90	317	25.10	357	30.79	397	36.96				
38	0.65	78	2.25	118	4.59	158	7.58	198	11.17	238	15.33	278	20.03	318	25.23	358	30.94	398	37.12				
39	0.68	79	2.30	119	4.65	159	7.66	199	11.27	239	15.44	279	20.15	319	25.37	359	31.09	399	37.28				
40	0.71	80	2.35	120	4.72	160	7.74	200	11.37	240	15.55	280	20.27	320	25.51	360	31.24	400	37.44				

Acute and Chronic Water Quality Standards for dissolved Zinc

Aquatic life coldwater, warmwater and edw

Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.	Hard.	Std.
mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L	mg/L	ug/L
1	2.4	41	55.1	81	98.0	121	137.7	161	175.4	201	211.7	241	246.9	281	281.2	321	314.8	361	347.7
2	4.3	42	56.2	82	99.0	122	138.7	162	176.4	202	212.6	242	247.8	282	282.1	322	315.6	362	348.5
3	6.0	43	57.3	83	100.1	123	139.6	163	177.3	203	213.5	243	248.6	283	282.9	323	316.4	363	349.4
4	7.7	44	58.4	84	101.1	124	140.6	164	178.2	204	214.4	244	249.5	284	283.8	324	317.3	364	350.2
5	9.3	45	59.6	85	102.1	125	141.6	165	179.1	205	215.3	245	250.4	285	284.6	325	318.1	365	351.0
6	10.8	46	60.7	86	103.1	126	142.5	166	180.0	206	216.2	246	251.2	286	285.5	326	318.9	366	351.8
7	12.3	47	61.8	87	104.1	127	143.5	167	181.0	207	217.1	247	252.1	287	286.3	327	319.8	367	352.6
8	13.8	48	62.9	88	105.2	128	144.4	168	181.9	208	217.9	248	253.0	288	287.1	328	320.6	368	353.4
9	15.2	49	64.0	89	106.2	129	145.4	169	182.8	209	218.8	249	253.8	289	288.0	329	321.4	369	354.2
10	16.7	50	65.1	90	107.2	130	146.4	170	183.7	210	219.7	250	254.7	290	288.8	330	322.2	370	355.1
11	18.1	51	66.2	91	108.2	131	147.3	171	184.6	211	220.6	251	255.6	291	289.7	331	323.1	371	355.9
12	19.4	52	67.3	92	109.2	132	148.3	172	185.5	212	221.5	252	256.4	292	290.5	332	323.9	372	356.7
13	20.8	53	68.4	93	110.2	133	149.2	173	186.4	213	222.4	253	257.3	293	291.4	333	324.7	373	357.5
14	22.1	54	69.5	94	111.2	134	150.2	174	187.4	214	223.3	254	258.1	294	292.2	334	325.6	374	358.3
15	23.5	55	70.6	95	112.2	135	151.1	175	188.3	215	224.1	255	259.0	295	293.0	335	326.4	375	359.1
16	24.8	56	71.7	96	113.2	136	152.1	176	189.2	216	225.0	256	259.9	296	293.9	336	327.2	376	359.9
17	26.1	57	72.8	97	114.2	137	153.0	177	190.1	217	225.9	257	260.7	297	294.7	337	328.0	377	360.7
18	27.4	58	73.9	98	115.2	138	153.9	178	191.0	218	226.8	258	261.6	298	295.6	338	328.9	378	361.5
19	28.7	59	74.9	99	116.2	139	154.9	179	191.9	219	227.7	259	262.4	299	296.4	339	329.7	379	362.4
20	30.0	60	76.0	100	117.2	140	155.8	180	192.8	220	228.6	260	263.3	300	297.2	340	330.5	380	363.2
21	31.2	61	77.1	101	118.2	141	156.8	181	193.7	221	229.4	261	264.2	301	298.1	341	331.3	381	364.0
22	32.5	62	78.2	102	119.2	142	157.7	182	194.6	222	230.3	262	265.0	302	298.9	342	332.2	382	364.8
23	33.7	63	79.2	103	120.2	143	158.7	183	195.5	223	231.2	263	265.9	303	299.8	343	333.0	383	365.6
24	35.0	64	80.3	104	121.1	144	159.6	184	196.4	224	232.1	264	266.7	304	300.6	344	333.8	384	366.4
25	36.2	65	81.3	105	122.1	145	160.5	185	197.3	225	232.9	265	267.6	305	301.4	345	334.6	385	367.2
26	37.4	66	82.4	106	123.1	146	161.5	186	198.3	226	233.8	266	268.4	306	302.3	346	335.4	386	368.0
27	38.6	67	83.5	107	124.1	147	162.4	187	199.2	227	234.7	267	269.3	307	303.1	347	336.3	387	368.8
28	39.9	68	84.5	108	125.1	148	163.3	188	200.1	228	235.6	268	270.2	308	304.0	348	337.1	388	369.6
29	41.1	69	85.6	109	126.1	149	164.3	189	201.0	229	236.5	269	271.0	309	304.8	349	337.9	389	370.4
30	42.2	70	86.6	110	127.0	150	165.2	190	201.9	230	237.3	270	271.9	310	305.6	350	338.7	390	371.2
31	43.4	71	87.7	111	128.0	151	166.2	191	202.8	231	238.2	271	272.7	311	306.5	351	339.5	391	372.1
32	44.6	72	88.7	112	129.0	152	167.1	192	203.7	232	239.1	272	273.6	312	307.3	352	340.4	392	372.9
33	45.8	73	89.8	113	130.0	153	168.0	193	204.6	233	239.9	273	274.4	313	308.1	353	341.2	393	373.7
34	47.0	74	90.8	114	130.9	154	168.9	194	205.5	234	240.8	274	275.3	314	309.0	354	342.0	394	374.5
35	48.1	75	91.8	115	131.9	155	169.9	195	206.3	235	241.7	275	276.1	315	309.8	355	342.8	395	375.3
36	49.3	76	92.9	116	132.9	156	170.8	196	207.2	236	242.6	276	277.0	316	310.6	356	343.6	396	376.1
37	50.5	77	93.9	117	133.9	157	171.7	197	208.1	237	243.4	277	277.8	317	311.5	357	344.5	397	376.9
38	51.6	78	94.9	118	134.8	158	172.7	198	209.0	238	244.3	278	278.7	318	312.3	358	345.3	398	377.7
39	52.8	79	96.0	119	135.8	159	173.6	199	209.9	239	245.2	279	279.5	319	313.1	359	346.1	399	378.5
40	53.9	80	97.0	120	136.8	160	174.5	200	210.8	240	246.0	280	280.4	320	314.0	360	346.9	400	379.3

Acute Water Quality Standards for dissolved Zinc
Aquatic life ephemeral

Hard.	Std.																				
mg/L	ug/L																				
1	22	41	522	81	930	121	1307	161	1665	201	2009	241	2343	281	2669	321	2987	361	3300		
2	40	42	533	82	940	122	1316	162	1674	202	2018	242	2351	282	2677	322	2995	362	3307		
3	57	43	544	83	950	123	1325	163	1682	203	2026	243	2360	283	2685	323	3003	363	3315		
4	73	44	555	84	959	124	1334	164	1691	204	2034	244	2368	284	2693	324	3011	364	3323		
5	88	45	565	85	969	125	1343	165	1700	205	2043	245	2376	285	2701	325	3019	365	3331		
6	103	46	576	86	979	126	1353	166	1708	206	2051	246	2384	286	2709	326	3027	366	3338		
7	117	47	587	87	988	127	1362	167	1717	207	2060	247	2392	287	2717	327	3034	367	3346		
8	131	48	597	88	998	128	1371	168	1726	208	2068	248	2401	288	2725	328	3042	368	3354		
9	145	49	608	89	1007	129	1380	169	1735	209	2077	249	2409	289	2733	329	3050	369	3362		
10	158	50	618	90	1017	130	1389	170	1743	210	2085	250	2417	290	2741	330	3058	370	3369		
11	171	51	629	91	1027	131	1398	171	1752	211	2093	251	2425	291	2749	331	3066	371	3377		
12	184	52	639	92	1036	132	1407	172	1761	212	2102	252	2433	292	2757	332	3074	372	3385		
13	197	53	649	93	1046	133	1416	173	1769	213	2110	253	2442	293	2765	333	3082	373	3392		
14	210	54	660	94	1055	134	1425	174	1778	214	2119	254	2450	294	2773	334	3089	374	3400		
15	223	55	670	95	1065	135	1434	175	1787	215	2127	255	2458	295	2781	335	3097	375	3408		
16	235	56	680	96	1074	136	1443	176	1795	216	2135	256	2466	296	2789	336	3105	376	3416		
17	248	57	691	97	1084	137	1452	177	1804	217	2144	257	2474	297	2797	337	3113	377	3423		
18	260	58	701	98	1093	138	1461	178	1813	218	2152	258	2482	298	2805	338	3121	378	3431		
19	272	59	711	99	1103	139	1470	179	1821	219	2161	259	2491	299	2813	339	3129	379	3439		
20	284	60	721	100	1112	140	1479	180	1830	220	2169	260	2499	300	2821	340	3136	380	3446		
21	296	61	732	101	1121	141	1488	181	1838	221	2177	261	2507	301	2829	341	3144	381	3454		
22	308	62	742	102	1131	142	1497	182	1847	222	2186	262	2515	302	2837	342	3152	382	3462		
23	320	63	752	103	1140	143	1506	183	1856	223	2194	263	2523	303	2845	343	3160	383	3469		
24	332	64	762	104	1150	144	1515	184	1864	224	2202	264	2531	304	2853	344	3168	384	3477		
25	344	65	772	105	1159	145	1523	185	1873	225	2211	265	2539	305	2861	345	3175	385	3485		
26	355	66	782	106	1168	146	1532	186	1881	226	2219	266	2547	306	2869	346	3183	386	3492		
27	367	67	792	107	1178	147	1541	187	1890	227	2227	267	2556	307	2876	347	3191	387	3500		
28	378	68	802	108	1187	148	1550	188	1898	228	2236	268	2564	308	2884	348	3199	388	3508		
29	390	69	812	109	1196	149	1559	189	1907	229	2244	269	2572	309	2892	349	3207	389	3515		
30	401	70	822	110	1206	150	1568	190	1916	230	2252	270	2580	310	2900	350	3214	390	3523		
31	412	71	832	111	1215	151	1577	191	1924	231	2260	271	2588	311	2908	351	3222	391	3531		
32	423	72	842	112	1224	152	1586	192	1933	232	2269	272	2596	312	2916	352	3230	392	3538		
33	435	73	852	113	1233	153	1594	193	1941	233	2277	273	2604	313	2924	353	3238	393	3546		
34	446	74	862	114	1243	154	1603	194	1950	234	2285	274	2612	314	2932	354	3245	394	3554		
35	457	75	871	115	1252	155	1612	195	1958	235	2294	275	2620	315	2940	355	3253	395	3561		
36	468	76	881	116	1261	156	1621	196	1967	236	2302	276	2628	316	2948	356	3261	396	3569		
37	479	77	891	117	1270	157	1630	197	1975	237	2310	277	2636	317	2956	357	3269	397	3577		
38	490	78	901	118	1279	158	1638	198	1984	238	2318	278	2645	318	2964	358	3276	398	3584		
39	501	79	911	119	1289	159	1647	199	1992	239	2327	279	2653	319	2971	359	3284	399	3592		
40	512	80	920	120	1298	160	1656	200	2001	240	2335	280	2661	320	2979	360	3292	400	3599		

Pentachlorophenol

Chronic Aquatic life coldwater,
warmwater and edw

Acute Aquatic life ephemeral

pH	ug/L	pH	ug/L	pH	ug/L	pH	ug/L
3	0.103	7	5.726	3	0.660	7	36.760
3.1	0.114	7.1	6.331	3.1	0.730	7.1	40.646
3.2	0.126	7.2	7.001	3.2	0.807	7.2	44.943
3.3	0.139	7.3	7.741	3.3	0.892	7.3	49.695
3.4	0.154	7.4	8.559	3.4	0.986	7.4	54.949
3.5	0.170	7.5	9.464	3.5	1.091	7.5	60.758
3.6	0.188	7.6	10.465	3.6	1.206	7.6	67.182
3.7	0.208	7.7	11.571	3.7	1.334	7.7	74.284
3.8	0.230	7.8	12.794	3.8	1.475	7.8	82.138
3.9	0.254	7.9	14.147	3.9	1.631	7.9	90.822
4	0.281	8	15.643	4	1.803	8	100.424
4.1	0.311	8.1	17.296	4.1	1.994	8.1	111.041
4.2	0.343	8.2	19.125	4.2	2.204	8.2	122.781
4.3	0.380	8.3	21.147	4.3	2.437	8.3	135.762
4.4	0.420	8.4	23.383	4.4	2.695	8.4	150.115
4.5	0.464	8.5	25.855	4.5	2.980	8.5	165.985
4.6	0.513	8.6	28.588	4.6	3.295	8.6	183.534
4.7	0.568	8.7	31.611	4.7	3.643	8.7	202.938
4.8	0.628	8.8	34.953	4.8	4.029	8.8	224.393
4.9	0.694	8.9	38.648	4.9	4.454	8.9	248.117
5	0.767	9	42.734	5	4.925	9	274.349
5.1	0.848	9.1	47.252	5.1	5.446	9.1	303.354
5.2	0.938	9.2	52.248	5.2	6.022	9.2	335.426
5.3	1.037	9.3	57.772	5.3	6.659	9.3	370.888
5.4	1.147	9.4	63.880	5.4	7.363	9.4	410.100
5.5	1.268	9.5	70.633	5.5	8.141	9.5	453.457
5.6	1.402	9.6	78.101	5.6	9.002	9.6	501.398
5.7	1.550	9.7	86.358	5.7	9.953	9.7	554.408
5.8	1.714	9.8	95.488	5.8	11.006	9.8	613.021
5.9	1.896	9.9	105.583	5.9	12.169	9.9	677.832
6	2.096	10	116.746	6	13.456	10	749.495
6.1	2.318	10.1	129.089	6.1	14.878	10.1	828.735
6.2	2.563	10.2	142.736	6.2	16.451	10.2	916.351
6.3	2.833	10.3	157.827	6.3	18.191	10.3	1013.231
6.4	3.133	10.4	174.513	6.4	20.114	10.4	1120.354
6.5	3.464	10.5	192.963	6.5	22.240	10.5	1238.802
6.6	3.831	10.6	213.364	6.6	24.591	10.6	1369.773
6.7	4.235	10.7	235.922	6.7	27.191	10.7	1514.590
6.8	4.683	10.8	260.864	6.8	30.066	10.8	1674.718
6.9	5.178	10.9	288.444	6.9	33.245	10.9	1851.775
	11		318.939	11		11	2047.552

Acute Criteria for Total Ammonia (in mg /L as N)		
pH	ALc	ALw & <u>ALedw</u>
6.5	32.6	48.8
6.6	31.3	46.8
6.7	29.8	44.6
6.8	28.1	42.0
6.9	26.2	39.1
7.0	24.1	36.1
7.1	22.0	32.8
7.2	19.7	29.5
7.3	17.5	26.2
7.4	15.4	23.0
7.5	13.3	19.9
7.6	11.4	17.0
7.7	9.65	14.4
7.8	8.11	12.1
7.9	6.77	10.1
8.0	5.62	8.40
8.1	4.64	6.95
8.2	3.83	5.72
8.3	3.15	4.71
8.4	2.59	3.88
8.5	2.14	3.20
8.6	1.77	2.65
8.7	1.47	2.20
8.8	1.23	1.84
8.9	1.04	1.56
9.0	0.885	1.32

Chronic Criteria for Total Ammonia in mg/L as N for ALC, ALW & ALEDW Designated Uses										
pH	Temperature, °C									
	0	14	16	18	20	22	24	26	28	30
6.5	6.67	6.67	6.06	5.33	4.68	4.12	3.62	3.18	2.80	2.46
6.6	6.57	6.57	5.97	5.25	4.61	4.05	3.56	3.13	2.75	2.42
6.7	6.44	6.44	5.86	5.15	4.52	3.98	3.50	3.07	2.70	2.37
6.8	6.29	6.29	5.72	5.03	4.42	3.89	3.42	3.00	2.64	2.32
6.9	6.12	6.12	5.56	4.89	4.30	3.78	3.32	2.92	2.57	2.25
7.0	5.91	5.91	5.37	4.72	4.15	3.65	3.21	2.82	2.48	2.18
7.1	5.67	5.67	5.15	4.53	3.98	3.50	3.08	2.70	2.38	2.09
7.2	5.39	5.39	4.90	4.31	3.78	3.33	2.92	2.57	2.26	1.99
7.3	5.08	5.08	4.61	4.06	3.57	3.13	2.76	2.42	2.13	1.87
7.4	4.73	4.73	4.30	3.78	3.33	2.92	2.57	2.26	1.98	1.74
7.5	4.36	4.36	3.97	3.49	3.06	2.69	2.37	2.08	1.83	1.61
7.6	3.98	3.98	3.61	3.18	2.79	2.45	2.16	1.90	1.67	1.47
7.7	3.58	3.58	3.25	2.86	2.51	2.21	1.94	1.71	1.50	1.32
7.8	3.18	3.18	2.89	2.54	2.23	1.96	1.73	1.52	1.33	1.17
7.9	2.80	2.80	2.54	2.24	1.96	1.73	1.52	1.33	1.17	1.03
8.0	2.43	2.43	2.21	1.94	1.71	1.50	1.32	1.16	1.02	0.897
8.1	2.10	2.10	1.91	1.68	1.47	1.29	1.14	1.00	0.879	0.773
8.2	1.79	1.79	1.63	1.43	1.26	1.11	0.973	0.855	0.752	0.661
8.3	1.52	1.52	1.39	1.22	1.07	0.941	0.827	0.727	0.639	0.562
8.4	1.29	1.29	1.17	1.03	0.906	0.796	0.700	0.615	0.541	0.475
8.5	1.09	1.09	0.990	0.870	0.765	0.672	0.591	0.520	0.457	0.401
8.6	0.920	0.920	0.836	0.735	0.646	0.568	0.499	0.439	0.386	0.339
8.7	0.778	0.778	0.707	0.622	0.547	0.480	0.422	0.371	0.326	0.287
8.8	0.661	0.661	0.601	0.528	0.464	0.408	0.359	0.315	0.277	0.244
8.9	0.565	0.565	0.513	0.451	0.397	0.349	0.306	0.269	0.237	0.208
9.0	0.486	0.486	0.442	0.389	0.342	0.300	0.264	0.232	0.204	0.179

Appendix B. List of Surface Waters and Designated Uses

Abbreviations

River Basins

BW = Bill Williams

CM = Colorado Mainstem (includes Red Lake)

CG = Colorado – Grand Canyon

CL = Colorado – Lower Gila

LC = Little Colorado

MG = Middle Gila (includes Gila River below San Carlos
Indian Reservation, Salt River below Granite Reef Dam
and Phoenix area waterbodies)

RM = Rios de Mexico (includes Rio Magdalena, Rio Sonoita,
and Rio Yaqui Basins)

SC = Santa Cruz – Rio Magdalena – Rio Sonoita

SP = San Pedro – Wilcox Playa – Rio Yaqui

SR = Salt River (includes Salt River and tributaries above
Granite Reef Dam)

UG = Upper Gila (includes Gila River and tributaries above
San Carlos Indian Reservation)

VR = Verde River

WP = Wilcox Playa

Designated Uses

ALc = Aquatic and Wildlife cold water

ALw = Aquatic and Wildlife warm water

ALe = Aquatic and Wildlife ephemeral

ALedw = Aquatic and Wildlife effluent dependent water

FBC = Full-body Contact

PBC = Partial-body Contact

DWS = Domestic Water Source

FC = Fish Consumption

AgI = Agricultural Irrigation

AgL = Agricultural Livestock Watering

Other

U = Unique Water

EDW = Effluent-dependent Water

WWTP = Wastewater Treatment Plant

Appendix B. List of Surface Waters and Designated Uses

Watershed	Surface Waters	Segment Description and Location <u>(Latitudes and Longitudes are in NAD 27)</u>	Aquatic Life				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	AgI	AgL
BW	Alamo Lake	34 14'45" / 113 35'00"		ALw			FBC			FC		AgL
BW	Big Sandy River	<u>Headwaters to confluence at Alamo Lake, Tributary to the Santa Maria River at 34 18'36"/113 31'34"</u>		ALw			FBC			FC		AgL
BW	Bill Williams River	<u>Tributary Alamo Lake to confluence with Colorado River at 3418'04" / 114 08'10"</u>		ALw			FBC			FC		AgL
BW	Blue Tank	34 40'14" / 112 58'16"		ALw			FBC			FC		AgL
BW	Boulder Creek	Headwaters to confluence with unnamed tributary at 34 41'14" / 113 03'34"	ALc				FBC			FC	AgI	AgL
BW	Boulder Creek	<u>Below confluence with unnamed tributary to Burro Creek at 34 36'47" / 113 18'00".</u>		ALw			FBC			FC	AgI	AgL
BW	Burro Creek (<u>Unique Water</u>) <u>Outstanding Arizona Water</u>	Headwaters to confluence with Boulder Creek at 34 36'47" / 113 18'00"		ALw			FBC			FC		AgL
BW	Burro Creek	<u>Below confluence with Boulder Creek to confluence with Big Sandy River at 34 32'24" / 113 34'19.2".</u>		ALw			FBC			FC		AgL
BW	Conger Creek	Headwaters to confluence with unnamed tributary at 34 45'13" / 113 05'45"	ALc				FBC			FC		AgL
BW	Conger Creek	<u>Below confluence with unnamed tributary to confluence with Burro Creek at 34 46'05"/113 12'54".</u>		ALw			FBC			FC		AgL
BW	Coors Lake	34 36' 20" / 113 11' 25"		ALw			FBC			FC		
BW	Copper Basin Wash	Headwaters to confluence with unnamed tributary at 34 28' 11" / 112 35' 31"	ALc				FBC			FC		AgL
BW	Copper Basin Wash	<u>Below confluence with unnamed tributary to Skull Valley Wash at 34 25'55" / 112 41'42".</u>			ALe		PBC					AgL
BW	Cottonwood Canyon	Headwaters to Bear Trap Spring at 34 45'10" / 112 52'32"	ALc				FBC			FC		AgL

Water-shed	Surface Waters	Segment Description and Location <u>(Latitudes and Longitudes are in NAD 27)</u>	Aquatic Life				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
BW	Cottonwood Canyon	Below Bear Trap Spring to confluence at Smith Canyon at 34 37'34" / 112 54' 46.8"		ALw			FBC			FC		AgL
BW	Date Creek	Tributary to the Headwaters to confluence with Santa Maria River at 34 18'11" / 113 29'53"		ALw			FBC			FC		AgL
BW	Francis Creek (Unique Water) Outstanding Arizona Water	Tributary to Headwaters to confluence with Burro Creek at 34 44'28" / 113 14'35"		ALw			FBC		DWS	FC	Agl	AgL
BW	Kirkland Creek	Tributary to Headwaters to confluence with Santa Maria River at 34 32'02" / 112 59'38"		ALw			FBC			FC	Agl	AgL
BW	Knight Creek	Tributary to the Headwaters to confluence with Big Sandy River at 34 55'16" / 113 37'30"		ALw			FBC			FC		AgL
BW	Peoples Peeples Canyon (Unique Water) Outstanding Arizona Water	Tributary to the Headwaters to confluence with Santa Maria River at 34 20'35" / 113 15'11"		ALw			FBC			FC		AgL
BW	Santa Maria River	Tributary to the Headwaters to confluence with Alamo Lake Bill Williams River at 34 18'36" / 113 31'34"		ALw			FBC			FC	Agl	AgL
BW	Trout Creek	Headwaters to confluence with unnamed tributary at 35 06'47" / 113 13'01"	ALc				FBC			FC		AgL
BW	Trout Creek	Below confluence with unnamed tributary to confluence with Knight Creek at 34 55'16" / 113 37'30".		ALw			FBC			FC		AgL
BW	Unnamed wash (EDW)	Blake Ranch RV Park WWTP outfall at 3510'46"N / 11347'3" W to confluence of unnamed wash with Big Sandy River				ALedw		PBC				

Water-shed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
CG	Agate Canyon Creek	<u>Grand Canyon tributary to the Headwaters to confluence with Colorado River at 36 08' 38" / 112 16' 48".</u>		ALw			FBC			FC		
CG	Beaver Dam Wash	<u>Tributary to the Headwaters to confluence with the Virgin River at 36 53' 42" / 113 55' 09"</u>		ALw			FBC			FC		AgL
CG	Big Springs Tank	36 36' 10" / 112 20' 58"	ALc				FBC			FC		AgL
CG	Boucher Creek	<u>Grand Canyon; tributary to the Headwaters to confluence with the Colorado River at 36 06' 54" / 112 13' 44".</u>		ALw			FBC			FC		
CG	Bright Angel Creek	Headwaters to <u>confluence with Roaring Springs Canyon at 36 11' 34" / 112 01' 54."</u>	ALc				FBC			FC		
CG	Bright Angel Creek	<u>Below confluence with Roaring Spring Canyon to Colorado River at 36 05' 56" / 112 05' 27.6".</u>		ALw			FBC			FC		
CG	<u>Bright Angel Wash</u>	<u>Headwaters to South Rim of Grand Canyon WWTP outfall at 36 02' 59" / 112 09' 02"</u>			ALe		PBC					
CG	Bright Angel Wash (EDW)	<u>South Rim WWTP outfall to Coconino Wash at 36 00' 11" / 112 12' 39.6"</u>				ALedw	PBC				AgL	
CG	Bulrush Canyon Wash	<u>Tributary to Headwaters to confluence with Kanab Creek at 36 46' 55" / 112 37' 08"</u>			ALe		PBC					
CG	Cataract Creek	Headwaters to Santa Fe Reservoir	ALc				FBC		DWS	FC	Agl	AgL
CG	Cataract Creek	<u>Santa Fe Reservoir to Williams WWTP outfall at 35 15' 40" / 112 10' 40"</u>	ALc				FBC			FC	Agl	AgL
CG	Cataract Creek (EDW)	Williams WWTP outfall to 1 km downstream				ALedw	PBC					
CG	Cataract Creek	Red Lake Wash to Havasupai Reservation at 33 56' 52" / 112 30' 38.3"			ALe		PBC				AgL	
CG	Cataract Lake	35 15' 05" / 112 12' 58"	ALc				FBC		DWS	FC		AgL
CG	Chuar Creek	<u>Grand Canyon; Headwaters to confluence with unnamed tributary at 36 11' 36" / 111 52' 17."</u>	ALc				FBC			FC		

Watershed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
CG	Chuar Creek	Below confluence with unnamed tributary to confluence with Colorado River at 36 08' 20.4" / 111 48' 58.7"		ALw			FBC			FC		
CG	City Reservoir	35 13' 57" / 112 11' 23"	ALc				FBC		DWS	FC		
CG	Clear Creek	Grand Canyon; h Headwaters to confluence with unnamed tributary at 36 09' 12" / 111 58' 25"	ALc				FBC			FC		
CG	Clear Creek	Below confluence with unnamed tributary to confluence with Colorado River at 36 04' 55" / 112 02' 09.6".		ALw			FBC			FC		
CG	Coconino Wash (EDW)	South Grand Canyon Sanitary District Tusayan WRF outfall to (need a downstream terminus)				ALedw		PBC				
CG	Colorado River	Lake Powell to Topock Marsh-Lake Mead. (Note that the portion from Lake Mead to Topock Marsh is in the Colorado – Lower Gila Watershed.)	ALc				FBC		DWS	FC	Agl	AgL
CG	Cottonwood Creek	Headwaters to confluence with unnamed tributary at 35 20' 45.5" / 113 35' 31"	ALc				FBC			FC		AgL
CG	Cottonwood Creek	Below confluence with unnamed tributary to confluence with Colorado River at 35 22' 05" / 113 40' 04.8".		ALw			FBC			FC		AgL
CG	Crystal Creek	Grand Canyon; h Headwaters to confluence with unnamed tributary at 36 13' 42" / 112 11' 48"	ALc				FBC			FC		
CG	Crystal Creek	Below confluence with unnamed tributary to Colorado River at 36 08' 06" / 112 14'34.8"		ALw			FBC			FC		
CG	Deer Creek	Grand Canyon; Headwaters to confluence with unnamed tributary at 36 26' 16" / 112 28' 15.5"	ALc				FBC			FC		
CG	Deer Creek	Below confluence with unnamed tributary to confluence with Colorado River at 36 23' 20" / 112 30' 28.8".		ALw			FBC			FC		
CG	Detrital Wash	Tributary to Headwaters to Lake Mead at 36 02' 20"/ 114 27' 47"			ALe			PBC				
CG	Dogtown Reservoir	35 12' 40" / 112 07' 46"	ALc				FBC		DWS	FC	Agl	AgL
CG	Dragon Creek	Grand Canyon; Headwaters to confluence with Milk Creek at 36 12'25"/112 09'33."	ALc				FBC			FC		

Watershed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
CG	Dragon Creek	Below confluence with Milk Creek to confluence with Crystal Creek at 36 10'12"/112 12"10.8"		ALw			FBC			FC		
CG	Garden Creek	Grand Canyon; tributary Headwaters to confluence with Pipe Creek at 36 05'35"/112 06'40"		ALw			FBC			FC		
CG	Gonzalez Lake	35 15' 26" / 112 12' 07"	ALc				FBC			FC	Agl	AgL
CG	Grand Wash	Tributary to Headwaters to Lake Mead at 36 15'29"/114 00'18"			ALe			PBC				
CG	Grapevine Creek	Grand Canyon; tributary to Headwaters to the Colorado River at 36 03'29"/112 00'00"		ALw			FBC			FC		
CG	Grapevine Wash	Tributary to Headwaters to Lake Mead at 36 06'29"/114 00'07"			ALe			PBC				
CG	Hakatai Canyon Creek	Grand Canyon; tributary Headwaters to the Colorado River at 36 14'42"/112 22'59"		ALw			FBC			FC		
CG	Hance Creek	Grand Canyon; tributary Headwaters to the Colorado River at 36 02'46"/111 57'07"		ALw			FBC			FC		
CG	Havasu Canyon Creek	Below From the Havasupai Indian Reservation; tributary to confluence with the Colorado River at 36 18' 29" / 112 45' 43" (This is the lower end of Cataract Creek).		ALw			FBC			FC		
CG	Hermit Creek	Grand Canyon; Headwaters to Hermit Pack Trail crossing at 36 03' 23" / 112 13' 25"	ALc				FBC			FC		
CG	Hermit Creek	Below Hermit Pack Trail crossing to confluence with the Colorado River at 36 06' 00" / 112 12' 32.4"		ALw			FBC			FC		
CG	Horn Creek	Grand Canyon; tributary Headwaters to confluence with the Colorado River at 36 05' 56" / 112 07' 59"		ALw			FBC			FC		
CG	Hualapai Wash	Tributary Headwaters to Lake Mead at 36 00' 40" / 114 07' 37"			ALe			PBC				
CG	Jacob Lake	36 42' 26" / 112 13' 48"		ALw			FBC			FC		

Water-shed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
CG	Kaibab Lake	35 17' 04" / 112 09' 17"	ALc				FBC		DWS	FC	Agl	AgL
CG	Kanab Creek	<u>Kanab Plateau; tributary Headwaters to confluence with the Colorado River at 36 23' 31" / 112 37' 44."</u>		ALw			FBC		DWS	FC		AgL
CG	Kwagunt Creek	<u>Grand Canyon; Headwaters to confluence with unnamed tributary at 36 13' 29" / 111 55' 24."</u>	ALc				FBC			FC		
CG	Kwagunt Creek	<u>Below confluence with unnamed tributary to confluence with the Colorado River at 36 15' 47"/111 49' 40.8".</u>		ALw			FBC			FC		
CG	Lake Mead	36 01' 00" / 114 44' 15"	ALc				FBC		DWS	FC	Agl	AgL
CG	Lake Powell	36 57 '00"/ 111 29' 15"	ALc				FBC		DWS	FC	Agl	AgL
CG	Lonetree Canyon Creek	<u>Grand Canyon; tributary Headwaters to the Colorado River at 36 04' 48" / 112 01' 52".</u>		ALw			FBC			FC		
CG	Matkatamiba Creek	<u>Below Havasupai Indian Reservation; tributary to confluence with the Colorado River at 36 20' 38" / 112 40' 19"</u>		ALw			FBC			FC		
CG	Monument Creek	<u>Grand Canyon; tributary Headwatersto the Colorado River at 36 05' 53" / 112 10' 55".</u>		ALw			FBC			FC		
CG	Nankoweap Creek	<u>Grand Canyon; hHeadwaters to confluence with unnamed tributary at 36 15' 30" / 111 57' 23"</u>	ALc				FBC			FC		
CG	Nankoweap Creek	<u>Below confluence with unnamed tributary to Colorado River at 36 18' 25" / 111 51' 28.8".</u>		ALw			FBC			FC		
CG	National Canyon Creek	<u>Grand Canyon; these reaches Portion of the creek that flows into the Colorado River at 36 15' 25" / 112 53' 34.8". that is not located on the Hualapai Indian Reservation</u>		ALw			FBC			FC		
CG	North Canyon Creek	<u>Grand Canyon; headwaters to confluence with unnamed tributary at 36 33' 57" / 111 55' 39"</u>	ALc				FBC			FC		
CG	North Canyon Creek	<u>Below confluence with unnamed tributary to Colorado River at 36 37' 48" / 111 45' 46.8".</u>		ALw			FBC			FC		
CG	Olo Creek	<u>Grand Canyon; tributary Headwaters to the Colorado River at 36 22' 16" / 112 38' 56"</u>		ALw			FBC			FC		

Watershed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
CG	Parashant Canyon	Headwaters to confluence with unnamed tributary at 36° 21' 26" / 113° 28' 10"	ALc				FBC			FC		
CG	Parashant Canyon	Below confluence with unnamed tributary <u>to the Colorado River</u>		ALw			FBC			FC		
CG	Paria River	Paria Plateau; tributary <u>Utah border to the Colorado River</u> at 36° 51' 29" / 111° 36' 04"		ALw			FBC			FC		
CG	Phantom Creek	Grand Canyon; Headwaters to confluence with unnamed tributary at 36° 10' 04" / 112° 07' 50"	ALc				FBC			FC		
CG	Phantom Creek	Below confluence with unnamed tributary <u>to Colorado River</u> at 36° 06' 58" / 112° 05' 09.6"		ALw			FBC			FC		
CG	Pipe Creek	Grand Canyon; tributary <u>Headwaters to the Colorado River</u> at 36° 05' 56" / 112° 06' 36".		ALw			FBC			FC		
CG	Red Canyon Creek	Grand Canyon; tributary <u>Headwaters to the Colorado River</u> at 36° 02' 42" / 111° 55' 08"		ALw			FBC			FC		
CG	Red Lake	35° 40' 00" / 114° 03' 45"		ALw			FBC			FC		AgL
CG	Redondo Lake	32° 44' 32" / 114° 29' 02"		ALw			FBC			FC		
CG	Roaring Springs	Headwaters of Roaring Springs Creek at 36° 11' 35" / 112° 01' 55.2"	ALc				FBC		DWS	FC		
CG	Roaring Springs Canyon	Grand Canyon; tributary <u>Headwaters to Bright Angel Creek</u> at 36° 11' 35" / 112° 01' 55"	ALc				FBC			FC		
CG	Rock Canyon	Tributary to Truxton Wash at 35° 26' 56" / 113° 36' 29"			ALe		PBC					
CG	Royal Arch Creek	Grand Canyon; Tributary to the Colorado River at 36° 11' 53" / 112° 26' 56"		ALw			FBC			FC		
CG	Ruby Canyon Creek	Grand Canyon; Tributary to the Colorado River at 36° 11' 24" / 112° 18' 54"		ALw			FBC			FC		
CG	Russell Tank	34° 52' 22" / 111° 52' 44"	ALc				FBC			FC		AgL

Watershed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
CG	Saddle Canyon Creek	Marble Canyon; Headwaters to confluence with unnamed tributary at 36 21' 35.5" / 112 22' 46"	ALc				FBC			FC		
CG	Saddle Canyon Creek	Below confluence with unnamed tributary to Colorado River at 36 22' 52" / 112 23' 16.8".		ALw			FBC			FC		
CG	Santa Fe Reservoir	35 14' 26" / 112 11' 04"	ALc				FBC		DWS	FC		
CG	Sapphire Canyon Creek	Grand Canyon; tributary Headwaters to the Colorado River at 36 08' 49" / 112 17' 28"		ALw			FBC			FC		
CG	Serpentine Canyon Creek	Grand Canyon; tributary Headwaters to the Colorado River at 36 12' 22" / 112 19' 37"		ALw			FBC			FC		
CG	Shinumo Creek	Grand Canyon; Headwaters to confluence with unnamed tributary at 36 18' 21" / 112 18' 03"	ALc				FBC			FC		
CG	Shinumo Creek	Below confluence with unnamed tributary to the Colorado River at 36 14' 13" / 112 20' 52.8".		ALw			FBC			FC		
CG	Short Creek	Tributary to the Virgin River at 36 58' 23" / 113 16' 08"			ALe			PBC				
CG	Slate Creek	Grand Canyon; tributary Headwaters to the Colorado River at 36 08' 06" / 112 14' 42"		ALw			FBC			FC		
CG	Spring Canyon Creek	Grand Canyon; tributary Headwaters to the Colorado River at 36 01' 08" / 113 21' 00"		ALw			FBC			FC		
CG	Stone Creek	Grand Canyon; tributary Headwaters to the Colorado River at 36 20' 49" / 112 27' 14"		ALw			FBC			FC		
CG	Tapeats Creek	Grand Canyon; tributary Headwaters to the Colorado River at 36 22' 16" / 112 28' 05"	ALc				FBC			FC		
CG	Thunder River	Tributary to Tapeats Creek at 36 23' 31" / 112 27' 00"	ALc				FBC			FC		
CG	Trail Canyon Creek	Grand Canyon; tributary Headwaters to the Colorado River at 35 50' 20" / 113 19' 37"		ALw			FBC			FC		
CG	Transect Canyon	Headwaters to North Rim WWTP outfall at 36 12' 20" / 112 03' 35"			ALe			PBC				
CG	Transect Canyon (EDW)	North Rim WWTP outfall to 1 km downstream				ALedw		PBC				

Water-shed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
CG	Transect Canyon	1 km downstream of the North Rim WWTP outfall to Bright Angel Creek.			ALe			PBC				
CG	Travertine Canyon Creek	Grand Canyon; tributary to the Colorado River at 36° 06' 11" / 112 13' 05"		ALw			FBC			FC		
CG	Truxton Wash	Tributary to Red Lake at 35 37' 23" / 114 03' 00"			ALe			PBC				
CG	Turquoise Canyon Creek	Grand Canyon; tributary to the Colorado River at 36 09' 14" / 112 18' 07"		ALw			FBC			FC		
CG	Unkar Creek	Grand Canyon; Headwaters to confluence with unnamed tributary at 36 07' 54" / 111 54' 03"	ALc				FBC			FC		
CG	Unkar Creek	Below conf with unnamed tributary to confluence with Colorado River at 36 04' 48" / 111 52' 22.8".		ALw			FBC			FC		
CG	Unnamed wash (EDW)	Grand Canyon NP Desert View WWTP outfall to Cedar Canyon				ALedw		PBC				
CG	Unnamed wash (EDW)	Williams Airport WWTP outfall to Cataract Creek				ALedw		PBC				
CG	Vasey's Paradise	Grand Canyon; A spring at 36 26' 49" / 111 50' 46"	ALc				FBC			FC		
CG	Virgin River	Tributary to the Colorado River at 36 47' 28" / 114 06' 11"		ALw			FBC			FC	Agl	AgL
CG	Vishnu Creek	Grand Canyon; tributary to the Colorado River at 36 03' 18" / 111 59' 42"		ALw			FBC			FC		
CG	Warm Springs Creek	Grand Canyon; tributary to the Colorado River at 36 11' 49" / 113 04' 55"		ALw			FBC			FC		
CG	West Cataract Creek	Tributary to Cataract Creek at 35 15' 40" / 112 11' 38"	ALc				FBC			FC		AgL
CG	White Creek	Grand Canyon; Headwaters to confluence with unnamed tributary at 36 18' 42" / 112 21' 03"	ALc				FBC			FC		
CG	White Creek	Below confluence with unnamed tributary to the Colorado River at 36 15' 22" / 112 19' 30".		ALw			FBC			FC		

Watershed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
CG	Wright Canyon Creek	Headwaters to confluence with unnamed tributary at 35 20' 54" / 113 30' 35"	ALc				FBC			FC		AgL
CG	Wright Canyon Creek	<u>Below confluence with unnamed tributary to confluence with Truxton Wash at (lat/long).</u>		ALw			FBC			FC		AgL
CL	A-10 Backwater	33 31' 38" / 114 33' 19"		ALw			FBC			FC		
CL	A-7 Backwater	33 34' 39" / 114 39' 42"		ALw			FBC			FC		
CL	Adobe Lake	33 02' 39" / 114 39' 19"		ALw			FBC			FC		
CL	Cibola Lake	33 14' 20" / 114 40' 16"		ALw			FBC			FC		
CL	Clear Lake	33 01' 57" / 114 31' 26"		ALw			FBC			FC		
CL	Columbus Wash	Tributary to the Gila River at 33 00' 25" / 113 16' 08"			ALe			PBC				
CL	Colorado River	<u>Lake Mead. to Topock Marsh</u>	ALc				FBC		DWS	FC	Agl	AgL
CL	Colorado River	<u>Topock Marsh to Morelos Dam</u>		ALw			FBC		DWS	FC	Agl	AgL
CL	Gila River	Painted Rock Dam to the Colorado River at 32 43' 12" / 114 33' 14"		ALw			FBC			FC	Agl	AgL
CL	Holy Moses Wash	<u>Headwaters to Kingman WWTP outfall at 35 10' 30" / 114 03' 43".</u>			ALe			PBC				
CL	Holy Moses Wash (EDW)	Kingman WWTP outfall to 3 km downstream.				ALedw		PBC				
CL	Holy Moses Wash	<u>3 km downstream of Kingman WWTP outfall to confluence with Sawmill Wash at 35 09'43" / 114 04'20.</u>			ALe			PBC				
CL	Hunter's Hole Backwater	32 31' 15" / 114 48' 03"		ALw			FBC			FC		AgL
CL	Imperial Reservoir	32 53' 04" / 114 27' 40"		ALw			FBC		DWS	FC	Agl	AgL
CL	Island Lake	33 01' 52" / 114 35' 07"		ALw			FBC			FC		
CL	Laguna Reservoir	32 51' 15" / 114 28' 38"		ALw			FBC		DWS	FC	Agl	AgL
CL	Lake Havasu	34 18' 15" / 114 08' 15"		ALw			FBC		DWS	FC	Agl	AgL

Watershed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
CL	Lake Mohave	35 11' 45" / 114 34' 00"	ALc				FBC		DWS	FC	Agl	AgL
CL	Martinez Lake	32 58' 52" / 114 28' 23"		ALw			FBC			FC	Agl	AgL
CL	Mittry Lake	32 49' 11" / 114 27' 41"		ALw			FBC			FC		
CL	Mohave Wash	Tributary Headwaters to Lake Havasu at 33 28' 55" / 114 35' 56"			ALe			PBC				
CL	Nortons Lake	33 02' 35" / 114 37' 58"		ALw			FBC			FC		
CL	Painted Rock (Borrow Pit) Lake	33 05' 00" / 113 01' 20"		ALw			FBC			FC	Agl	AgL
CL	Pretty Water Lake	33 19' 45" / 114 42' 15"		ALw			FBC			FC		
CL	Quigley Ponds	32 43' 00" / 113 58' 00"		ALw			FBC			FC		
CL	Sacramento Wash	Tributary to Topock Marsh at 34 43' 48" / 114 29' 13"			ALe			PBC				
CL	Sawmill Canyon	Headwaters to abandoned gaging station at 35 09' 46.5" / 113 57' 51"		ALw			FBC			FC		AgL
CL	Sawmill Canyon	Below abandoned gaging station to confluence with Sacramento Wash at 35 09' 43" / 113 58' 01.2"			ALe			PBC				AgL
CL	Topock Marsh	34 47' 30" / 114 31' 00"		ALw			FBC		DWS	FC	Agl	AgL
CL	Tyson Wash (EDW)	Town of Quartzite WWTP outfall at 3342'30"N / 11413'14"W to (need downstream terminus)				ALedw		PBC				
CL	Wellton Canal	Part of the Yuma Canal System							DWS		Agl	AgL
CL	Wellton Ponds	32 42' 15" / 114 06' 15"		ALw			FBC			FC		
CL	YPG Pond	32 50' 22" / 114 26' 25"		ALw			FBC			FC		
CL	Yuma Area Canals	Above municipal water treatment plant intakes							DWS		Agl	AgL
CL	Yuma Area Canals	Below municipal water treatment plant intakes and all drains									Agl	AgL
LC	Als Lake	35 02'17"/111 25'13"		ALw			FBC			FC		AgL

Watershed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
LC	Ashurst Lake	35 01'10"/111 24'09"	ALc				FBC			FC	Agl	AgL
LC	Atcheson Reservoir	34 00'00"/109 20'41"		ALw			FBC			FC	Agl	AgL
LC	Auger Creek	Tributary to Nutrioso Creek at 33 57'22"/109 12'58"	ALc				FBC			FC		AgL
LC	Barbershop Canyon Creek	Tributary to East Clear Creek at 34 33'00"/111 09'43"	ALc				FBC			FC		AgL
LC	Bear Canyon Creek	Tributary to General Springs Canyon at 34 32'18"/111 12'15"	ALc				FBC			FC		AgL
LC	Bear Canyon Creek	Tributary to Willow Creek at 34 27'29"/111 00'00"	ALc				FBC			FC		AgL
LC	Bear Canyon Lake	34 24'10"/111 00'09"	ALc				FBC			FC	Agl	AgL
LC	Becker Lake	34 09'16"/109 18'18"	ALc				FBC			FC		AgL
LC	Billy Creek	Tributary to Show Low Creek at 34 12'25"/110 00'00"	ALc				FBC			FC		AgL
LC	Black Canyon Creek	Tributary to Chevelon Creek at 34 47'38"/110 36'22"	ALc				FBC			FC	Agl	AgL
LC	Black Canyon Lake	34 19'50"/110 41'59"	ALc				FBC		DWS	FC	Agl	AgL
LC	Blue Ridge Reservoir	34 33'15"/111 11'01"	ALc				FBC			FC	Agl	AgL
LC	Boot Lake	34 58'53"/111 20'00"		ALw			FBC			FC		AgL
LC	Buck Springs Canyon Creek	Tributary to Leonard Canyon Creek at 34 28'52"/111 05'24"	ALc				FBC			FC		AgL
LC	Bunch Reservoir	34 02'12"/109 26'45"	ALc				FBC			FC	Agl	AgL
LC	Camillo Tank	34 55'03"/111 22'41"		ALw			FBC			FC		AgL
LC	Carnero Lake	34 06'57"/109 31'39"	ALc				FBC			FC		AgL
LC	Chevelon Canyon Lake	34 30'39"/110 49'28"	ALc				FBC			FC	Agl	AgL
LC	Chevelon Creek	Tributary to the Little Colorado River at 34 57'04"/110 31'30"	ALc				FBC			FC	Agl	AgL
LC	Chevelon Creek, West Fork	Tributary to Chevelon Creek at 34 36'58"/110 46'05"	ALc				FBC			FC		AgL

Water-shed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
LC	Chilson Tank	34 51'46"/111 22'52"		ALw			FBC			FC		AgL
LC	Cholla Lake	34 56'00"/110 17'12"		ALw			FBC			FC		
LC	Clear Creek	Tributary to the Little Colorado River at 34 59'13"/110 38'17"	ALc				FBC		DWS	FC		AgL
LC	Clear Creek Reservoir	34 58'10"/110 38'33"	ALc				FBC		DWS	FC	Agl	AgL
LC	Coconino Reservoir	35 00'16"/111 23'52"	ALc				FBC			FC	Agl	AgL
LC	Colter Creek	Tributary to Nutrioso Creek at 33 58'19"/109 12'29"	ALc				FBC			FC		AgL
LC	Colter Reservoir	33 56'40"/109 28'50"	ALc				FBC			FC		AgL
LC	Concho Creek	Tributary to Carrizo Wash at 34 36'25"/109 33'54"	ALc				FBC			FC		AgL
LC	Concho Lake	34 26'36"/109 37'40"	ALc				FBC			FC	Agl	AgL
LC	Cow Lake	34 53'19"/111 18'49"		ALw			FBC			FC		AgL
LC	Coyote Creek	Tributary to the Little Colorado River at 34 18'22"/109 20'53"	ALc				FBC			FC	Agl	AgL
LC	Crisis Lake (Snake Tank #2)	34 47'51"/111 17'01"		ALw			FBC			FC		AgL
LC	Dane Canyon Creek	Tributary to Barbershop Canyon Creek at 34 30'29"/111 09'07"	ALc				FBC			FC		AgL
LC	Daves Tank	34 44'23"/111 17'08"		ALw			FBC			FC		AgL
LC	Deep Lake	35 03'30"/111 24'55"		ALw			FBC			FC		AgL
LC	Dry Lake (EDW)	34 37'52"/110 23'40"				ALedw		PBC				
LC	Ducksnest Lake	34 59'15"/111 23'53"		ALw			FBC			FC		AgL
LC	East Clear Creek	Tributary to Clear Creek at 34 38'31"/110 59'49"	ALc				FBC			FC	Agl	AgL
LC	Ellis Wiltbank Reservoir	34 05'25"/109 28'24"		ALw			FBC			FC	Agl	AgL
LC	Fish Creek	Tributary to the Little Colorado River at 34 04'05"/109 26'49"	ALc				FBC			FC		AgL

Watershed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
LC	Fool's Hollow Lake	34 16'14"/110 04'15"	ALc				FBC			FC		AgL
LC	General Springs Canyon Creek	Tributary to East Clear Creek at 34 32'17"/111 12'18"	ALc				FBC			FC		AgL
LC	Geneva Reservoir	34 01'44"/109 31'44"		ALw			FBC			FC		AgL
LC	Hall Creek	Tributary to the Little Colorado River at 34 03'58"/109 27'07"	ALc				FBC			FC	Agl	AgL
LC	Hart Canyon Creek	Tributary to Willow Creek at 34 30'40"/110 59'28"	ALc				FBC			FC		AgL
LC	Hay Lake	34 00'11"/109 25'55"		ALw			FBC			FC		AgL
LC	Hog Wallow Lake	33 58'57"/109 25'38"		ALw			FBC			FC	Agl	AgL
LC	Horse Lake	35 03'53"/111 27'51"		ALw			FBC			FC		AgL
LC	Huffer Tank	34 27'45"/111 23'09"		ALw			FBC			FC		AgL
LC	Hulsey Creek	Tributary to Nutrioso Creek at 33 56'28"/109 11'28"	ALc				FBC			FC		AgL
LC	Hulsey Lake	33 55'57"/109 09'33"	ALc				FBC			FC		AgL
LC	Indian Lake	35 00'38"/111 22'37"		ALw			FBC			FC		AgL
LC	Jack's Canyon Creek	Tributary to the Little Colorado River at 35 00'07"/110 39'07"	ALc				FBC			FC	Agl	AgL
LC	Jarvis Lake	33 58'59"/109 12'33"		ALw			FBC			FC		AgL
LC	Kinnikinick Lake	34 53'52"/111 18'20"	ALc				FBC			FC		AgL
LC	Knoll Lake	34 25'38"/111 05'10"	ALc				FBC			FC		AgL
LC	Lake Humphreys (EDW)	35 11'51"/111 35'16"				ALedw		PBC				
LC	Lake Mary, Lower	35 06'22"/111 34'20"	ALc				FBC			FC		AgL
LC	Lake Mary, Upper	35 04'45"/111 31'56"	ALc				FBC		DWS	FC		AgL
LC	Lake of the Woods	34 09'39"/109 58'45"	ALc				FBC			FC	Agl	AgL

Water-shed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
LC	Lee Valley Creek (<u>UW</u>) <u>Outstanding Arizona Water</u>	Headwaters to Lee Valley Reservoir	ALc				FBC			FC		
LC	Lee Valley Creek	From Lee Valley Reservoir to the East Fork of the Little Colorado River at 33 56'35"/109 29'06"	ALc				FBC			FC		AgL
LC	Lee Valley Reservoir	33 56'30"/109 30'00"	ALc				FBC			FC	Agl	AgL
LC	Leonard Canyon Creek	Tributary to Clear Creek at 34 37'26"/111 02'20"	ALc				FBC			FC		AgL
LC	Leonard Canyon Creek, East Fork	Tributary to Leonard Canyon Creek at 34 25'52"/111 05'06"	ALc				FBC			FC		AgL
LC	Leonard Canyon Creek, Middle Fork	Tributary to Leonard Canyon, West Fork at 34 26'17"/111 06'47"	ALc				FBC			FC		AgL
LC	Leonard Canyon Creek, West Fork	Tributary to Leonard Canyon, East Fork at 34 28'01"/111 05'28"	ALc				FBC			FC		AgL
LC	Lily Creek	Tributary to Coyote Creek at 33 59'46"/109 03'58"	ALc				FBC			FC		AgL
LC	Little Colorado River	Headwaters to Lyman Reservoir	ALc				FBC			FC	Agl	AgL
LC	Little Colorado River	Below Lyman Reservoir, to confluence with the Puerco River at 34 53'20"/110 07'41"	ALc				FBC		DWS	FC	Agl	AgL
LC	Little Colorado River	Below confluence with Puerco River <u>to the Colorado River</u> at 36 11'31"/111 47'49".		ALw			FBC		DWS	FC	Agl	AgL
LC	Little Colorado River, East Fork	Tributary to the Little Colorado River at 34 00'14"/109 27'22"	ALc				FBC			FC		AgL
LC	Little Colorado River, South Fork	Tributary to the Little Colorado River at 34 05'20"/109 24'58"	ALc				FBC			FC		AgL
LC	Little Colorado River, West Fork (<u>Unique Water</u>) <u>Outstanding Surface Water</u>	Headwaters to Government Springs at 33 59'33"/109 27'52"	ALc				FBC			FC		
LC	Little Colorado River, West Fork	Below Government Springs <u>to the Little Colorado River at 34 00'14"/109 27'21.6"</u> .	ALc				FBC			FC		AgL
LC	Little George Reservoir	34 00'37"/109 19'15"		ALw			FBC			FC	Agl	
LC	Little Mormon Lake	34 17'00"/109 58'03"		ALw			FBC			FC	Agl	AgL

Watershed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
LC	Little Ortega Lake	34 22'45"/109 40'00"	ALw				FBC			FC		
LC	Long Lake, Lower	34 46'45"/111 12'00"	ALc				FBC			FC	Agl	AgL
LC	Long Lake, Upper	35 00'00"/111 21'00"		ALw			FBC			FC		AgL
LC	Long Tom Tank	34 20'37"/110 49'20"	ALc				FBC			FC		AgL
LC	Lower Walnut Canyon Lake (EDW)	35 12'04"/111 34'07"				ALedw		PBC				
LC	Lyman Reservoir	34 21'30"/109 21'30"	ALc				FBC			FC	Agl	AgL
LC	Mamie Creek	Tributary to Coyote Creek at 33 59'24"/109 03'50"	ALc				FBC			FC		AgL
LC	Marshall Lake	35 07'10"/111 32'01"	ALc				FBC			FC		AgL
LC	McKay Reservoir	34 01'27"/110 29'07"	ALc				FBC			FC	Agl	AgL
LC	Merritt Draw Creek	Tributary to Barbershop Canyon Creek at 34 29'38"/111 09'54"	ALc				FBC			FC		AgL
LC	Mexican Hay Lake	34 01'57"/109 21'25"	ALc				FBC			FC	Agl	AgL
LC	Milk Creek	Tributary to Hulsey Creek at 33 56'31"/109 11'17"	ALc				FBC			FC		AgL
LC	Miller Canyon Creek	Tributary to East Clear Creek at 34 33'00"/111 14'17"	ALc				FBC			FC		AgL
LC	Miller Canyon Creek, East Fork	Tributary to Miller Canyon Creek at 34 30'18"/111 14'53"	ALc				FBC			FC		AgL
LC	Mineral Creek	Tributary to Little Ortega Lake at 34 22'52"/109 39'50"	ALc				FBC			FC	Agl	AgL
LC	Mormon Lake	34 56'40"/111 27'10"	ALc				FBC		DWS	FC	Agl	AgL
LC	Morton Lake	34 53'36"/111 17'39"	ALc				FBC			FC		AgL
LC	Mud Lake	34 55'24"/111 21'18"		ALw			FBC			FC		AgL
LC	Ned Lake (EDW)	32 17'18"/110 03'20"				ALedw		PBC				
LC	Nelson Reservoir	34 03'12"/109 11'18"	ALc				FBC			FC	Agl	AgL
LC	Norton Reservoir	34 03'57"/109 31'21"		ALw			FBC			FC		AgL

Watershed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
LC	Nutrioso Creek	Tributary to the Little Colorado River at 34 09'04"/109 17'35"	ALc				FBC			FC	Agl	AgL
LC	Paddy Creek	Tributary to Nutrioso Creek at 33 54'47"/109 10'16"	ALc				FBC			FC		AgL
LC	Phoenix Park Wash	Tributary to Dry Lake at 34 37'30"/110 22'12"			ALe			PBC				
LC	Pine Tank	34 46'49"/111 17'17"		ALw			FBC			FC		AgL
LC	Pintail Lake (EDW)	34 18'06"/110 01'17"				ALedw		PBC				
LC	Pool Corral Lake	33 58'16"/109 24'53"		ALw			FBC			FC	Agl	AgL
LC	Porter Creek	Tributary to Show Low Creek at 34 10'16"/109 58'48"	ALc				FBC			FC		AgL
LC	Potato Lake	34 27'44"/111 20'42"	ALc				FBC			FC		AgL
LC	Pratt Lake	34 01'31"/109 04'16"	ALc				FBC			FC		
LC	Puerco River	Tributary to the Little Colorado River at 34 53'20"/110 07'41"		ALw			FBC		DWS	FC	Agl	AgL
<u>LC</u>	<u>Puerco River (EDW)</u>	<u>Sanders Unified School District WWTP outfall to (need downstream terminus)</u>				ALedw		PBC				
LC	Rainbow Lake	34 09'03"/109 59'01"	ALc				FBC			FC	Agl	AgL
LC	Reagan Reservoir	34 02'09"/109 08'43"		ALw			FBC			FC		AgL
<u>LC</u>	<u>Rio de Flag</u>	<u>Headwaters to Flagstaff WWTP outfall at..... (which WWTP one at 35 11'10"/111 38'01" or 35 13'32"/111 33'25"??)</u>			ALe			PBC				
LC	Rio de Flag (EDW)	Flagstaff WWTP outfall to the confluence with San Francisco Wash at 35 14'04"/111 28'02.5"				ALedw		PBC				
LC	River Reservoir	34 02'01"/109 26'07"	ALc				FBC			FC	Agl	AgL
LC	Rogers Reservoir	33 58'30"/109 16'18"		ALw			FBC			FC		AgL
LC	Rudd Creek	Tributary to Nutrioso Creek at 34 04'12"/109 11'56"	ALc				FBC			FC		AgL
LC	Russel Reservoir	33 59'29"/109 20'00"		ALw			FBC			FC	Agl	AgL
LC	San Salvador Reservoir	33 58'51"/109 19'51"		ALw			FBC			FC	Agl	AgL

Watershed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
LC	Salt House Lake	33 57'06"/109 20'12"		ALw			FBC			FC		AgL
LC	Scott Reservoir	34 10'27"/109 57'27"	ALc				FBC			FC	Agl	AgL
LC	Show Low Creek	Tributary to Silver Creek at 34 25'26"/110 04'05"	ALc				FBC			FC	Agl	AgL
LC	Show Low Lake	34 11'25"/109 59'55"	ALc				FBC			FC	Agl	AgL
LC	Silver Creek	Tributary to the Little Colorado River at 34 44'24"/110 02'17"	ALc				FBC			FC	Agl	AgL
LC	Slade Reservoir	33 59'50"/109 20'00"		ALw			FBC			FC	Agl	AgL
LC	Soldiers Annex Lake	34 47'13"/111 13'48"	ALc				FBC			FC	Agl	AgL
LC	Soldiers Lake	34 47'49"/110 13'59"	ALc				FBC			FC	Agl	AgL
LC	Spaulding Tank	34 30'17"/111 02'03"		ALw			FBC			FC		AgL
LC	Sponseller Lake	34 14'10"/109 50'42"	ALc				FBC			FC		AgL
LC	St Johns Reservoir (Little Reservoir)	34 29'14"/109 21'57"		ALw			FBC			FC	Agl	AgL
LC	Telephone Lake (EDW)	34 17'35"/110 02'39"				ALedw		PBC				
LC	Tremaine Lake	34 46'00"/111 14'10"	ALc				FBC			FC		AgL
LC	Tunnel Reservoir	34 01'51"/109 26'32"	ALc				FBC			FC	Agl	AgL
LC	<u>Turkey Draw (EDW)</u>	<u>High Country Pines II WWTP outfall to confluence of Turkey Draw with Black Canyon Creek</u>				ALedw		PBC				
LC	<u>Unnamed wash (EDW)</u>	<u>Bison Ranch WWTP outfall to confluence of unnamed wash with Pierce Seep</u>				ALedw		PBC				
LC	<u>Unnamed wash (EDW)</u>	<u>Black Mesa Ranger Station WWTP outfall at 3423'32"N /11053'32" W to confluence of unnamed wash with Pierce Wash</u>				ALedw		PBC				
LC	<u>Unnamed wash (EDW)</u>	<u>Estates at Pine Canyon WWTP outfall to confluence of unnamed wash with Bow Wash and Arrow Wash</u>				ALedw		PBC				
LC	Vail Lake	35 05'24"/111 30'42"	ALc				FBC			FC		AgL
LC	Walnut Creek	Tributary to Billy Creek at 34 09'50"/109 58'48"	ALc				FBC			FC		AgL
LC	Water Canyon Creek	Tributary to the Little Colorado River at 34 06'47"/109 18'43"	ALc				FBC			FC		AgL

Watershed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
LC	Water Canyon Reservoir	34 00'15"/109 20'05"		ALw			FBC			FC	Agl	AgL
LC	Whale Lake (EDW)	35 12'32"/111 34'42"				ALedw		PBC				
LC	Whipple Lake	34 16'47"/109 58'28"		ALw			FBC			FC		AgL
LC	White Mountain Lake	34 21'54"/109 59'38"	ALc				FBC			FC	Agl	AgL
LC	White Mountain Reservoir	34 00'15"/109 30'48"	ALc				FBC			FC	Agl	AgL
LC	Willow Creek	Tributary to Clear Creek at 34 38'31"/110 59'49"	ALc				FBC			FC		AgL
LC	Willow Springs Canyon Creek	Tributary to Chevelon Creek at 34 21'32"/110 53'20"	ALc				FBC			FC		AgL
LC	Willow Springs Lake	34 18'45"/110 52'34"	ALc				FBC			FC	Agl	AgL
LC	Woodland Reservoir	34 07'36"/109 57'06"	ALc				FBC			FC	Agl	AgL
LC	Woods Canyon Creek	Tributary to Chevelon Creek at 34 21'32"/110 53'20"	ALc				FBC			FC		AgL
LC	Woods Canyon Lake	34 20'05"/110 56'35"	ALc				FBC		DWS	FC	Agl	AgL
LC	Zuni River	Tributary to the Little Colorado River at 34 38'42"/109 40'26"	ALc				FBC			FC	Agl	AgL
MG	Agua Fria River	Headwaters to confluence with unnamed EDW wash at 34 35'43"/112 16'29", receiving treated wastewater from the Prescott Valley WWTP			ALe		PBC					AgL
MG	Agua Fria River (EDW)	Below confluence with unnamed wash receiving treated wastewater from the Prescott Valley WWTP to State Route 169 at 34 31'43"/112 14' 7.5".			ALedw		PBC					AgL
MG	Agua Fria River	State Route 169 to Lake Pleasant at 34 54'54.7"/112 14'7.5"		ALw			FBC		DWS	FC	Agl	AgL
MG	Agua Fria River	Below Lake Pleasant to the El Mirage WWTP at 33 34'36"/112 48'45".			ALe		PBC					AgL
MG	Agua Fria River (EDW)	El Mirage WWTP to 2 km downstream.			ALedw		PBC					

Watershed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
MG	Agua Fria River	Below 2 km downstream of the El Mirage WWTP to State Highway 85 at 33°27'29"/112°21'47.8".			ALe			PBC				
MG	Agua Fria River	Below State Highway 85 to the Gila River at 33°23'24"/112°21'50.4".		ALw			FBC			FC		
MG	Agua Fria River	Below State Highway 85 to the Avondale WWTP outfall			ALe			PBC				
MG	Agua Fria River	Avondale WWTP outfall to Gila River at 33°23'24"/112°21'50.4".				ALedw		PBC				
MG	Alvord Park Lake	Municipal Park Lake: 35th Avenue & Baseline Road, Phoenix at 33°22'34"/112°08'11".		ALw			PBC		FC			
MG	Antelope Creek	Tributary to Martinez Creek at 34°16'37"/112°08'46"		ALw			FBC			FC	AgL	
MG	Arlington Canal	From Gila River at 33°20'54"/112°35'39" to Gila River at 33°13'44"/112°46'15". Above Wilson Avenue									AgL	
MG	Ash Creek	Headwaters to confluence with Tex Canyon at 34°34'44"/112°07'18".	ALc				FBC			FC	Agl	AgL
MG	Ash Creek	Below confluence with Tex Canyon to Aqua Fria at 34°19'34"/112°04'30".		ALw			FBC			FC	Agl	AgL
MG	Beehive Tank	32°52'36"/111°02'19".		ALw			FBC			FC		AgL
MG	Big Bug Creek	Headwaters to confluence with Eugene Gulch at 34°27'11"/112°18'28.5".	ALc				FBC			FC	Agl	AgL
MG	Big Bug Creek	Below confluence with Eugene Gulch to confluence with Aqua Fria River at 34°18'54"/112°03'58".		ALw			FBC			FC	Agl	AgL
MG	Black Canyon Creek	Tributary to the Agua Fria River at 34°04'12"/112°09'29".		ALw			FBC			FC		AgL
MG	Blind Indian Creek	Tributary to the Hassayampa River at 34°12'40"/112°32'17".		ALw			FBC			FC		AgL
MG	Bonsall Park Lake	Municipal Park Lake; 59th Avenue & Bethany Home Road, Phoenix at 33°31'23"/112°11'05".		ALw			PBC		FC			
MG	Canal Park Lake	Municipal Park Lake; College Avenue & Curry Road, Tempe at 33°26'57"/111°56'14".		ALw			PBC		FC			

Watershed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
MG	Cave Creek	Headwaters to the Cave Creek Dam		ALw			FBC			FC		AgL
MG	Cave Creek	Cave Creek Dam to the Arizona Canal at 33 34'24"/112 06'25"			ALe			PBC				
MG	<u>Cave Creek (EDW)</u>	<u>City of Phoenix WRF outfall to unnamed tributary to confluence with Cave Creek</u>				<u>ALedw</u>		<u>PBC</u>				
MG	<u>Cave Creek Wash (EDW)</u>	<u>Town of Cave Creek WWTP outfall to confluence of Cave Creek Wash with Andorra Wash and Gallaway Wash</u>				<u>ALedw</u>		<u>PBC</u>				
MG	Centennial Wash	Tributary to the Gila River at 33 13'44"/112 46'16"			ALe			PBC			AgL	
MG	Centennial Wash Ponds	33 55'10"/113 23'05"		ALw			FBC			FC		AgL
MG	Chaparral Park Lake	Municipal Park Lake; Hayden Road & Chaparral Road, Scottsdale <u>at 33 30'41"/111 54'25"</u> .		ALw				PBC		FC	Agl	
MG	Cortez Park Lake	Municipal Park Lake; 35th Avenue & Dunlap, Glendale <u>at 33 34'13"/112 07'51"</u> .		ALw				PBC		FC	Agl	
MG	Desert Breeze Lake	Municipal Park Lake; Galaxy Drive, West <u>Chandler at 33 18'47.5"/111 55'08"</u> .		ALw				PBC		FC		
MG	Devils Canyon	Tributary to Mineral Creek at 33 12'58"/110 59'42"		ALw				FBC		FC		AgL
MG	Dobson Lake	Municipal Park Lake; Dobson Road & Los Lagos Vista Avenue, Mesa <u>at 33 22'17"/111 53'12"</u> .		ALw				PBC		FC		
MG	<u>East Maricopa Floodway (EDW)</u>	<u>City of Mesa SE Water Reclamation Facility outfall at 3321'54 / 11141'14" W to Gila River Indian Community boundary</u>				<u>ALedw</u>		<u>PBC</u>				
MG	Eldorado Park Lake	Municipal Park Lake; Miller Road & Oak Street, Tempe <u>at 33 28'25/111 54'51"</u> .		ALw				PBC		FC		
MG	Encanto Park Lake	Municipal Park Lake; 15th Avenue & Encanto Blvd., Phoenix <u>at 33 28'36/112 05'17"</u> .		ALw				PBC		FC	Agl	
MG	Fain Lake	<u>Park Lake, city City of Prescott Valley Park Lake 34 34'29"/112 21'03"</u>		ALw				PBC		FC		
MG	French Gulch	<u>Headwaters to confluence with Hassayampa River</u>		<u>ALw</u>	<u>ALe</u>			PBC			<u>Agl</u>	

Watershed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
MG	Galena Gulch	Tributary to the Agua Fria River at 34 28'37"/112 15'14"			ALe			PBC				AgL
MG	Gila River	San Carlos Indian Reservation to the Ashurst-Hayden Dam <u>at 33 06'01"/111 14'46"</u> .		ALw			FBC			FC	Agl	AgL
MG	Gila River	Ashurst-Hayden Dam to the Florence WWTP <u>outfall at 33 02'30"/111 24'16"</u>			ALe			PBC				AgL
MG	Gila River (EDW)	Florence WWTP outfall to Felix Road <u>at 33'01'49"/111 17'16"</u>				ALedw		PBC				
MG	Gila River	Felix Road to the Gila River Indian Reservation.			ALe			PBC				AgL
MG	Gila River (EDW)	Salt River to the Gillespie Dam <u>at 33 13'45"/112 46'07"</u>				ALedw		PBC		FC	Agl	AgL
MG	Gila River	Gillespie Dam to Painted Rock Dam <u>at 33 04'23"/113 00'40"</u>		ALw			FBC			FC	Agl	AgL
MG	Granada Park Lake	Municipal Park Lake; 6505 North 20th Street, Phoenix <u>at 33 31'58.6/112 02'06"</u> .		ALw				PBC		FC		
MG	Groom Creek	Tributary to the Hassayampa River at 34 27'14"/112 29'24"	ALc				FBC		DWS	FC		AgL
MG	Hank Raymond Lake	33 50'18"/112 16'07"		ALw			FBC			FC	Agl	AgL
MG	Hassayampa Lake	34 25'45"/112 25'29"	ALc				FBC		DWS	FC		
MG	Hassayampa River	Headwaters to confluence with unnamed tributary at 34 26'09"/112 30'32"	ALc				FBC			FC	Agl	AgL
MG	Hassayampa River	Below confluence with unnamed tributary to 8 miles south of Wickenberg.		ALw			FBC			FC	Agl	AgL
MG	Hassayampa River	8 miles south of Wickenburg to the Buckeye Irrigation Company Canal <u>at 33 23'38"/112 22'22.8"</u>			ALe			PBC				AgL
MG	Hassayampa River (EDW)	Tartesso Sewer System WRF outfall at 3327'56" N / 11244'31" W to (need downstream terminus)				ALedw		PBC				
MG	Hassayampa River	Buckeye Irrigation Company Canal to the Gila River <u>33 19'34"/112 42'39.6"</u>		ALw			FBC			FC		AgL

Watershed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
MG	Horsethief Lake	34 09'42"/112 17'56"	ALc				FBC		DWS	FC		AgL
MG	Indian Bend Wash	Tributary to the Salt River at 33 26'13"/111 54'58"			ALe			PBC				
MG	Indian Bend Wash Lakes	Municipal Park Lakes; Scottsdale <u>at 33 30'31"/111 54'24"</u> .		ALw				PBC		FC		
MG	Indian School Park Lake	Municipal Park Lake; Indian School Road & Hayden Road, Scottsdale <u>at 33 29'45"/111 54'33"</u> .		ALw				PBC		FC		
MG	Kiwanis Park Lake	Municipal Park Lake; 6000 South Mill Avenue, Tempe <u>at 33 22'27"/111 56'21"</u> .		ALw				PBC		FC	Agl	
MG	Lake Pleasant	33 51'15"/112 16'15"		ALw			FBC		DWS	FC	Agl	AgL
MG	Lion Canyon	Tributary to Weaver Creek at 34 10'12"/112 41'49"		ALw			FBC			FC		AgL
MG	Little Ash Creek	Tributary to Ash Creek at 34 20'46"/112 04'16"		ALw			FBC			FC		AgL
MG	Lynx Creek	Headwaters to confluence with unnamed tributary at 34 34'29"/112 21'05"	ALc				FBC			FC		AgL
MG	Lynx Creek	Below confluence with unnamed tributary <u>to Agua Fria River at 34 37'49"/112 14'42"</u> .		ALw			FBC			FC		AgL
MG	Lynx Lake	34 31'08"/112 23'05"	ALc				FBC		DWS	FC	Agl	AgL
MG	Maricopa Park Lake	33 35'30"/112 18'16"		ALw				PBC		FC		
MG	Martinez Canyon	Tributary to Box Canyon at 33 06'33"/111 12'48"		ALw			FBC			FC		AgL
MG	Martinez Creek	Tributary to the Hassayampa River at 33 59'56"/112 44'38"		ALw			FBC			FC	Agl	AgL
MG	McKellips Park Lake	Municipal Park Lake; Miller Road & McKellips Road, Scottsdale <u>at 33 27'14"/111 54 45</u>		ALw				PBC		FC	Agl	
<u>MG</u>	<u>McMicken Wash (EDW)</u>	<u>Jomax WWTP outfall to confluence of McMicken Wash with Agua Fria River</u>				ALedw		PBC				
MG	Mineral Creek	Tributary to the Gila River at 34 17'42"/112 13'34"		ALw			FBC			FC		AgL
MG	Minnehaha Creek	Tributary to the Hassayampa River at 34 11'49"/112 32'24"		ALw			FBC			FC		AgL

Water-shed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
MG	New River	Headwaters to I-17 at 33 54'19.5"/112 08'46"		ALw			FBC			FC	Agl	AgL
MG	New River	Below I-17 to <u>Aqua Fria River</u> 33 30'47"/112 18'14"			ALe		PBC					AgL
MG	<u>New River (EDW)</u>	<u>South Peoria WRF outfall at 3333'45" N / 11216'26"W to (need downstream terminus)</u>				ALedw	PBC					
MG	Painted Rock Reservoir	33 04'15"/113 00'30"		ALw			FBC			FC	Agl	AgL
MG	Papago Park Ponds	Municipal Park Lake; Galvin Parkway, <u>Phoenix at 33 26'56"/111 56'50"</u> .		ALw			PBC		FC			
MG	Perry Mesa Tank	34 11'03"/112 01'59"		ALw			FBC			FC		AgL
MG	Phoenix Area Canals	Granite Reef Dam to all municipal WTP intakes						DWS		Agl	AgL	
MG	Phoenix Area Canals	Below municipal WTP intakes and all other locations								Agl	AgL	
MG	Picacho Reservoir	32 51'17"/111 28'49"		ALw			FBC			FC	Agl	AgL
MG	Poland Creek	Headwaters to confluence with Lorena Gulch at 34 12'32"/112 19'07"	ALc				FBC			FC		AgL
MG	Poland Creek	<u>Below confluence with Lorena Gulch to Black Canyon Creek at 34 14'20"/112 12'54"</u>		ALw			FBC			FC		AgL
MG	<u>Queen Creek</u>	Headwaters to the Town of Superior WWTP outfall at <u>33 16'45"/111 17'25"</u> .		ALw	ALe		PBC					AgL
MG	Queen Creek (EDW)	Town of Superior WWTP outfall to confluence with Potts Canyon <u>at 33 17'17"/111 11'36"</u> .				ALedw	PBC					
MG	Queen Creek	Potts Canyon to Queen Valley Golf Course <u>33 17'55"/111 17'17"</u> .		ALw			FBC			FC		AgL
MG	Queen Creek	Below Queen Valley Golf Course to Gila River at <u>33 09'50"/111 53'16.8"</u>			ALe		PBC					
MG	<u>Quilitosa Wash</u>	<u>USAF Luke AFB Auxiliary Field WWTP outfall at 32 52' 51" N / 112 43' 59" to Gila River</u>				ALedw	PBC					

Watershed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
MG	Riverview Park Lake	Municipal Park Lake; Dobson Road & 8th Street, Mesa at 33°25'50"/111°52'29"		ALw				PBC		FC		
MG	Roadrunner Park Lake	Municipal Park Lake; 36th Street & Cactus, Phoenix at 33°35'57"/112°00'18"		ALw				PBC		FC		
MG	Salt River	Verde River to 2 km below Granite Reef Dam (Granite Reef Dam is at 31°26'23"/111°12'40")		ALw			FBC		DWS	FC	Agl	AgL
MG	Salt River	2 km below Granite Reef <u>Dam to City of Mesa NW WRF outfall at 3326'45"N / 11156'35" W.</u>			ALe			PBC				
<u>MG</u>	<u>Salt River (EDW)</u>	<u>City of Mesa NW WRF outfall at 3326'45"N / 11156'35" W to Tempe Town Lake</u>				<u>ALedw</u>		<u>PBC</u>				
<u>MG</u>	<u>Salt River (EDW)</u>	<u>City of Tempe Kyrene WRF outfall at 3321'45"N / 11156'35" W to I-10 bridge at 33°24'60"/112°01'02".</u>				<u>ALedw</u>		<u>PBC</u>				
MG	Salt River	I-10 bridge to the 23rd Ave WWTP <u>at 33°25'03"/112°06'41.6" (Rio Salado Restoration Project)</u>		<u>ALw</u>	ALe			PBC		FC		
MG	Salt River (EDW)	23rd Ave WWTP to confluence with Gila River <u>at 33°22'55"/112°18'21.6".</u>				ALedw		PBC		FC	Agl	AgL
<u>MG</u>	<u>Siphon Draw (EDW)</u>	<u>Superstition Mountains WWTP outfall at 3321'40"N / 11133'30" W to confluence with Queen Creek</u>				<u>ALedw</u>		<u>PBC</u>				
MG	Sycamore Creek	Headwaters to confluence with Tank Canyon at 34°19'32"/111°50'12"	ALc				FBC			FC		AgL
MG	Sycamore Creek	Below confluence with Tank <u>Canyon to the Agua Fria River 34°19'30"/112°04'12"</u>		ALw			FBC			FC		AgL
MG	Tempe Town Lake	At Mill Avenue Bridge at 33°26'30"/111°53'30".		ALw			FBC			FC		
MG	Tule Creek	Tributary to the Agua Fria River at 33°57'25"/112°14'13"		ALw			FBC			FC		AgL
MG	Turkey Creek	Headwaters to confluence with unnamed tributary at 34°19'28"/112°21'28"	ALc				FBC			FC	Agl	AgL
MG	Turkey Creek	Below confluence with unnamed tributary <u>to Poland Creek at 34°14'20"/112°12'54".</u>		ALw			FBC			FC	Agl	AgL
MG	Unnamed Wash (EDW)	Gila Bend WWTP outfall to the Gila River <u>at 32°58'13"/112°43'46".</u>			ALedw		PBC					

Watershed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural	
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	AgI
MG	Unnamed Wash (EDW)	Luke Air Force Base WWTP outfall to the Agua Fria River at 33 32'21"/112 19'15".				ALedw		PBC			
MG	<u>Unnamed Wash (EDW)</u>	<u>Entrada del Oro WWTP outfall at 3319'17" N / 11122'17" W to confluence with Queen Creek</u>				ALedw		PBC			
MG	<u>Unnamed Wash (EDW)</u>	<u>Rainbow Valley WRF outfall at 3317'42" N / 11226'58" W to confluence with Waterman Wash to Gila River</u>				ALedw		PBC			
MG	<u>Unnamed Wash (EDW)</u>	<u>Ranch 160 WWTP outfall at 3317'02" N / 11121'09"W to confluence with Queen Creek</u>				ALedw		PBC			
MG	<u>Unnamed Wash (EDW)</u>	<u>Florence Gardens WWTP outfall at 3303'49.54" N / 11123'13.28" W to confluence with Gila River</u>				ALedw		PBC			
MG	<u>Unnamed Wash (EDW)</u>	<u>Tempe Papago WTP outfall at 33 26' 38" N / 111 56' 04" W to Papago Park Pond South</u>				ALedw		PBC			
MG	Unnamed Wash (EDW)	<u>Town of Prescott Valley WWTP outfall to the Agua Fria River at 34 35'16"/112 16'18".</u>				ALedw		PBC			
MG	Unnamed Wash (EDW)	Queen Valley Sanitary District WWTP outfall at 33 17'38"/111 18'31" to the confluence with Queen Creek				ALedw		PBC			
MG	<u>Wagner Wash (EDW)</u>	<u>Buckeye Festival Ranch WRF outfall at 3339'14" N / 11240'18" W to confluence with Hassayampa River</u>				ALedw		PBC			
MG	Vista Del Camino Park North	Municipal Park Lake; 7700 East Roosevelt Street, Scottsdale <u>at 33 27'33"/111 54'49.3</u> .		ALw			PBC		FC		
MG	<u>Vista Del Camino Park South</u>	<u>Municipal Park Lake; 7700 East Roosevelt Street, Scottsdale</u>		ALw			PBC		FC		
MG	Walnut Canyon Creek	Tributary to the Gila River at 33 06'47"/111 05'20"		ALw			FBC		FC		AgL
MG	Weaver Creek	Tributary to Martinez Creek at 34 03'18"/112 46'48"		ALw			FBC		FC		AgL
MG	White Canyon Creek	Tributary to Walnut Canyon Creek at 33 09'25"/111 04'48"		ALw			FBC		FC		AgL

Watershed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
SC	Agua Caliente Lake	Municipal Park Lake; 12325 East Roger Road, Tucson at <u>I(at/long)</u> .		ALw				PBC		FC		
SC	Agua Caliente Wash	Headwaters to Soldier Trail <u>at 32 17'48"/110 42'58.5</u>		ALw			FBC			FC		AgL
SC	Agua Caliente Wash	Below Soldier Trail <u>to Tank Verde Creek32 14'35"/110 47'17"</u>			ALe			PBC				AgL
SC	Aguirre Wash	Those reaches not located on the Tohono O'odham Indian Reservation			ALe			PBC				
SC	Alambre Wash	Tributary to Brawley Wash at 31 57'47"/111 23'28"			ALe			PBC				
SC	Alamo Wash	Tributary to Rillito Creek at 32 16'23"/110 54'18"			ALe			PBC				
SC	Altar Wash	Tributary to Brawley Wash at 31 57'47"/111 23'28"			ALe			PBC				
SC	Alum Gulch	Headwaters to 31 28'20"/110 43'51"			ALe			PBC				AgL
SC	Alum Gulch	From 31 28'20"/110 43'51" to 31 29'17"/110 44'25"		ALw			FBC			FC		AgL
SC	Alum Gulch	<u>Below 31 29'17"/110 44'25" to Sonoita Creek 31 30'58"/110 47'06"</u>			ALe			PBC				AgL
SC	Arivaca Creek	Tributary to Altar Wash at 31 43'01"/111 25'41"		ALw			FBC			FC		AgL
SC	Arivaca Lake	31 31'50"/111 15'05"		ALw			FBC			FC	Agl	AgL
SC	Atterbury Wash	Tributary to Pantano Wash at 32 10'52"/110 48'50"			ALe			PBC				AgL
SC	Bear Grass Tank	31 33'01"/111 11'32"		ALw			FBC			FC		AgL
SC	Big Wash	Tributary to Cañada del Oro at 32 24'47"/110 56'28"			ALe			PBC				
SC	Black Wash (EDW)	<u>Pima County WWMD Avra Valley WWTP to confluence with Brawley Wash</u>				ALedw		PBC				
SC	Bog Hole Tank	31 28'34"/110 37'07"		ALw			FBC			FC		AgL
SC	Brawley Wash	Tributary to Los Robles Wash at 32 21'54"/111 17'31"			ALe			PBC				

Watershed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
SC	California Gulch	South of Ruby		ALw			FBC			FC		AgL
SC	Cañada del Oro	Headwaters to Highway 89 at 32 24'48"/110 56'14"		ALw			FBC			FC	Agl	AgL
SC	Cañada del Oro	Below Highway 89 <u>to the Santa Cruz River at 32 19'30" 111 03'47"</u>			ALe		PBC					AgL
SC	Cienega Creek	Headwaters to confluence with Gardner Canyon and Spring Water Canyon <u>at R18E, T17S, at 31 47'38"/110 35'17"</u>		ALw			FBC			FC		AgL
SC	Cienega Creek (<u>Unique Water</u>) <u>Outstanding Arizona Water</u>	From confluence with Gardner Canyon and Spring Water Canyon <u>at R18E, T17S to USGS gaging station at 32 02'09"/110 40'34" (becomes Pantano Wash below this point)</u>		ALw			FBC			FC		AgL
SC	Davidson Canyon	Headwaters to unnamed spring at 31 59'00"/110 38'46"			ALe		PBC					AgL
SC	Davidson Canyon	Unnamed Spring to confluence with unnamed tributary at 31 59'32.5"/110 38'43.5"		ALw			FBC			FC		AgL
SC	Davidson Canyon	From confluence with unnamed tributary to unnamed spring at 32 00'54"/110 38'54"			ALe		PBC					AgL
SC	Davidson Canyon	From unnamed spring at 32 00'54"/110 38'54" to confluence with Cienega Creek <u>at 32 01'05"/110 38'32"</u>		ALw			FBC			FC		AgL
SC	Empire Gulch	Headwaters to unnamed spring at 31 47'14"/110 38'13"			ALe		PBC					
SC	Empire Gulch	From 31 47'14"/110 38'13" to 31 47'11"/110 00'39"		ALw			FBC			FC		
SC	Empire Gulch	Below 31 47'11"/110 00'39" to 31 47'18"/110 36'57"			ALe		PBC					AgL
SC	Empire Gulch	From 31 47'18"/110 36'57" to confluence with Cienega Creek <u>at 31 48'32"/110 35'20"</u>		ALw			FBC			FC		
SC	Flux Canyon	Tributary to Alum Canyon at 31 30'22"/110 46'41"			ALe		PBC					AgL
SC	Gardner Canyon Creek	Headwaters to confluence with Sawmill Canyon at 31 42'51"/110 44'43"	ALc				FBC			FC		
SC	Gardner Canyon Creek	Below Sawmill Canyon <u>to Cienega Creek at 31 47'38"/110 35'17"</u>		ALw			FBC			FC		

Watershed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural	
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl
SC	Greene Wash	Tributary to the Santa Cruz River at 33 00'54"/111 59'46"			ALe			PBC			
SC	Harshaw Creek	Tributary to Sonoita Creek at 31 32'35"/110 44'42"			ALe			PBC			AgL
SC	Hit Tank	32 43'57"/111 03'18"		ALw			FBC			FC	AgL
SC	Holden Canyon Creek	<u>Headwaters to Mexico border at 31 23'38"/111 15'54"</u> <u>in the Coronado National Forest</u>		ALw			FBC			FC	
SC	Huachuca Tank	31 21'11"/110 30'12"		ALw			FBC			FC	AgL
SC	Julian Wash	Tributary to the Santa Cruz River at 32 11'20"/110 59'13"			ALe			PBC			
SC	<u>Julian Wash (EDW)</u>	<u>Tucson Fire Station #10 outfall to Julian Wash to 2.2 miles downstream</u>				ALedw		PBC			
SC	Kennedy Lake	Municipal Park Lake; Mission Road & Ajo Road, Tucson <u>at 32 10'48.5"/111 00'27"</u>		ALw				PBC		FC	
SC	<u>Lakeside Lake (EDW)</u>	Municipal Park Lake; 8300 East Stella Road, Tucson <u>at 32 11'10.5"/110 49'00"</u>		ALw		ALedw		PBC		FC	
SC	Lemmon Canyon Creek	Headwaters to confluence with unnamed tributary at 32 23'47"/110 47'46"	ALc				FBC			FC	
SC	Lemmon Canyon Creek	Below unnamed tributary <u>to Sabino Canyon Creek at 32 23'02"/110 47'28"</u>		ALw			FBC			FC	
SC	Los Robles Wash	Tributary to the Santa Cruz River at 32 32'13"/111 23'53"			ALe			PBC			
SC	Madera Canyon Creek	Headwaters to confluence with unnamed tributary at 31 43'42"/110 52'50"	ALc				FBC			FC	AgL
SC	Madera Canyon Creek	Below unnamed tributary <u>to the Santa Cruz River at 31 46'55"/111 00'58"</u>		ALw			FBC			FC	AgL
SC	Mattie Canyon	Tributary to Cienega Creek at 31 51'31"/110 34'25"		ALw			FBC			FC	AgL

Watershed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
SC	Nogales Wash	Tributary to Potro Creek at 31 24'07"/110 57'11"		ALw				PBC				
SC	Oak Tree Canyon	Tributary to Cienega Creek at 31 48'43"/110 35'24"			ALe			PBC				
SC	Palisade Canyon Creek	Headwaters to confluence with unnamed tributary at 32 22'34"/110 45'35"	ALc				FBC			FC		
SC	Palisade Canyon Creek	Below unnamed tributary <u>to Sabino Canyon Creek at 32 21'54"/110 46'23"</u>		ALw			FBC			FC		
SC	Pantano Wash	Tributary to Tanque Verde Creek at 32 16'23"/110 54'18"			ALe			PBC				
SC	Paradise Lake	32 44'18"/111 40'42"		ALw			FBC				Agl	
SC	Parker Canyon Creek	Headwaters to confluence with unnamed tributary at 31 24'17"/110 28'44.5"	ALc				FBC			FC		
SC	Parker Canyon Creek	Below unnamed tributary <u>to Mexico border at 31 19'59"/110 33'58"</u>		ALw			FBC			FC		
SC	Parker Canyon Lake	31 25'35"/110 27'15"	ALc				FBC			FC	Agl	AgL
SC	Patagonia Lake	31 29'30"/110 52'00"	ALc				FBC		DWS	FC	Agl	AgL
SC	Peña Blanca Lake	31 24'12"/111 05'04"	ALc				FBC			FC	Agl	AgL
SC	Potro Creek	Headwaters to Interstate 19 at 31 23'24"/110 57'30"			ALe			PBC				AgL
SC	Potro Creek	Below Interstate <u>19 to Santa Cruz River at 31 27'07"/110 57'40"</u>		ALw			FBC			FC		AgL
SC	Puertocito Wash	Tributary to Altar Wash at 31 43'01"/111 25'41"			ALe			PBC				
SC	Quitobaquito Spring	(Pond and Springs) 31 56'39"/113 01'06"		ALw			FBC			FC		AgL
SC	Redrock Canyon Creek	Tributary to Harshaw Creek at 31 32'35"/110 44'13"		ALw			FBC			FC		
SC	Rillito Creek	Tributary to the Santa Cruz River at 32 18'50"/111 03'18"			ALe			PBC				AgL
SC	Romero Canyon Creek	Headwaters to confluence with unnamed tributary at 32 24'30"/110 50'35"	ALc				FBC			FC		

Water-shed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
SC	Romero Canyon Creek	Below unnamed tributary to Sutherland Wash at 32 25'52"/110 53'56"		ALw			FBC			FC		
SC	Rose Canyon Creek	Tributary to Rose Canyon Lake at 32 23'10"/110 43'01"	ALc				FBC			FC		
SC	Rose Canyon Lake	32 23'13"/110 42'38"	ALc				FBC			FC		AgL
SC	Ruby Lakes	Near the town of Ruby at 31 26'28.5"/111 14'19".		ALw			FBC			FC		AgL
SC	Sabino Canyon Creek	Headwaters to confluence with unnamed tributary at 32 23'28"/110 47'00"	ALc				FBC		DWS	FC	Agl	
SC	Sabino Canyon Creek	Below unnamed tributary to Tanque Verde River at 32 15'40"/110 49'30"		ALw			FBC		DWS	FC	Agl	
SC	Salero Ranch Tank	31 35'42"/110 53'22"		ALw			FBC			FC		AgL
SC	Santa Cruz River	Headwaters to the International Boundary at 31 19'58"/110 35'48"		ALw			FBC			FC	Agl	AgL
SC	Santa Cruz River	International Boundary to the Nogales International WWTP outfall at 31 27'24"/110 58'05"		ALw			FBC		DWS	FC	Agl	AgL
SC	Santa Cruz River (EDW)	Nogales International WWTP outfall to the Tubac Bridge at 31 36'25"/111 02'00"				ALedw		PBC				AgL
SC	Santa Cruz River	Tubac Bridge to Pima County WWMD Green Valley WWTP			ALe		PBC					AgL
SC	Santa Cruz River (EDW)	Pima County WWMD Green Valley WWTP outfall at 3154'7.2" N / 11058'21.8" W to Roger Rd WWTP outfall at 32 17'05" N / 111 01'41" W				ALedw		PBC				
SC	Santa Cruz River (EDW)	Roger Road WWTP outfall to Baumgartner Road at 32 35'37" / 111 28'08"				ALedw		PBC				
SC	Santa Cruz River (Wash)	Baumgartner Road to the Gila River Indian Reservation			ALe		PBC					AgL
SC	Santa Cruz River, West Branch	Tributary to the Santa Cruz River at 32 12'07"/110 59'20"			ALe		PBC					AgL
SC	Santa Cruz River, N. Fork	Tributary to the Santa Cruz River at 32 55'55"/111 53'10"			ALe		PBC					

Water-shed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural	
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl
SC	Santa Cruz River, N. Fork <u>(EDW)</u>	City of Casa Grande WRF outfall at 32°54'57" N / 111°47'13" W to (need downstream terminus)				<u>ALedw</u>		<u>PBC</u>			
SC	Santa Rosa Wash	Below Tohono O'odham Indian Reservation to the Santa Cruz Wash at 32°53'49"/111°56'46"			ALe			PBC			
SC	Santa Rosa Wash (EDW)	Palo Verde Utilities WWTP outfall at 33°04'20" N / 112°01'47" W to confluence with Santa Cruz River				<u>ALedw</u>		<u>PBC</u>			
SC	Soldier Lake	32°25'34"/110°44'41"	ALc				FBC			FC	AgL
SC	Sonoita Creek	Headwaters to the Town of Patagonia WWTP outfall <u>31°32'15"/110°45'30"</u>			ALe			PBC			AgL

Water shed	Surface Waters	Segment Description and Location	Designated Uses									
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
SC	Sonoita Creek (EDW)	Town of Patagonia WWTP outfall to <u>750 permanent groundwater upwelling point approximately 1600 feet</u> downstream of outfall.				<u>ALedw</u>		<u>PBC</u>				AgL
SC	Sonoita Creek	Below <u>750 1600 feet</u> downstream of Town of Patagonia WWTP outfall to the Santa Cruz River at 31°29'43"/110°58'37"		ALw			FBC			FC	Agl	AgL
SC	Split Tank	31°28'15"/111°05'15"		ALw			FBC			FC		AgL
SC	Sutherland Wash	Tributary to Cañada del Oro at 32°25'05"/110°55'26"		ALw			FBC			FC		
SC	Sycamore Canyon	From 32°21'36"/110°45'21" to Sycamore Reservoir		ALw			FBC			FC		
SC	Sycamore Canyon Creek	Headwaters to the U.S./Mexico border at 31°22'48"/111°13'19"		ALw			FBC			FC		AgL
SC	Sycamore Reservoir	32°20'57"/110°44'52"	ALc				FBC			FC		AgL
SC	Tanque Verde Creek	Headwaters to Houghton Road at 32°14'13"/110°46'04"		ALw			FBC			FC		AgL

SC	Tanque Verde Creek	Below Houghton Road to Rillito Creek at 32 16'08"/110 52'30"			ALe			PBC			AgL	
SC	The Lake Tank	32 54'14"/111 04'14"		ALw		FBC			FC		AgL	
SC	Three R Canyon	Headwaters to Lat/Long: 31 28'35"/110 46'19"			ALe		PBC				AgL	
SC	Three R Canyon	From Lat/Long: 31 28'35"/110 46'19" to Lat/Long: 31 28'27"/110 47'12"		ALw		FBC			FC		AgL	
SC	Three R Canyon	From Lat/Long: 31 28'27"/110 47'12" to Sonoita Creek at 31 29'56"/110 48'54"			ALe		PBC				AgL	
SC	Tinaja Wash	<u>Headwaters to the Santa Cruz River at 31 32'58.4"/111 02'45.7"Eastern foothills, Sierrita Mountains</u>			ALe		PBC				AgL	
Water shed	Surface Waters	Segment Description and Location	Designated Uses									
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
SC	Unnamed Wash (EDW)	Oracle Sanitary District WWTP outfall at 32 36'54"/110 48'02" to 5 km downstream				ALedw		PBC				
SC	<u>Unnamed Wash</u>	<u>5 km downstream of the Oracle Sanitary District WWTP outfall</u>			ALe			PBC				
SC	<u>Unnamed Wash (EDW)</u>	<u>Arizona City Sanitary District WWTP outfall at 3245'4" N / 11145'38" W to confluence with Santa Cruz Wash</u>				ALedw		PBC				
SC	<u>Unnamed Wash (EDW)</u>	<u>Mountain Pass WWTP outfall to confluence with Big Wash</u>				ALedw		PBC				
SC	<u>Unnamed Wash (EDW)</u>	<u>Saddlebrooke WWTP outfall to confluence with Canada del Oro</u>				ALedw		PBC				
SC	Vekol Wash	Those reaches not located on the Ak-Chin, Tohono O'odham and Gila River Indian Reservations			ALe		PBC					
SC	Wakefield Canyon	Headwaters to confluence with unnamed tributary 31 52'47"/110 26'25"	ALc			FBC			FC		AgL	
SC	Wakefield Canyon	Below confluence with unnamed tributary to Cienega Creek at 31 52'47.5"/110 26'25"		ALw		FBC			FC		AgL	

SC	Wild Burro Canyon	Headwaters to confluence with unnamed tributary at 32 28'36"/111 05'18"		ALw			FBC			FC		AgL
SC	Wild Burro Canyon	Below confluence with unnamed tributary <u>to Santa Cruz</u> <u>River at 32 28'34"/111 05'15.5"</u>			ALe		PBC					AgL
SC	Williams Ranch Tanks	31 55'15"/110 25'30"		ALw			FBC			FC		AgL

Water-shed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	AgI	AgL
SP	Abbot Canyon	Headwaters to confluence with Whitewater Draw at 31 33'32"/109 48'39.6". Mule Mountains		ALw			FBC			FC		AgL
SP	Aravaipa Creek	Headwaters to confluence with Stowe Gulch at 32 52'10"/110 22'00"		ALw			FBC			FC		AgL
SP	Aravaipa Creek (Unique Water) Outstanding Arizona Water	Stowe Gulch confluence to downstream boundary of Aravaipa Canyon Wilderness Area at 32 54'23"/110 33'40"		ALw			FBC			FC		AgL
SP	Aravaipa Creek	Below downstream boundary of Aravaipa Canyon Wilderness Area to the San Pedro River at 32 50'20"/110 42'50"		ALw			FBC			FC		AgL
SP	Ash Creek	Chiricahua Mountains, near Whitewater Draw at 31 50'28"/109 40'01.2"		ALw			FBC			FC	AgI	AgL
SP	Babocomari River Creek	Tributary to the San Pedro River at 31 43'19"/110 11'35"		ALw			FBC			FC		AgL
SP	Bass Canyon Creek	Headwaters to confluence with unnamed tributary at 32 26'06"/110 13'18"	ALc				FBC			FC		AgL
SP	Bass Canyon Creek	Below confluence with unnamed tributary to Hot Springs Canyon Creek 32 20'53"/110 15'14"		ALw			FBC			FC		AgL
SP	Bass Canyon Tank	32 24'00"/110 13'00"		ALw			FBC			FC		AgL
SP	Bear Creek	Headwaters to U.S./Mexico border at 31 19'59"/110 22'58.5"		ALw			FBC			FC		AgL
SP	Big Creek	Tributary to Pitchfork Canyon at 32 35'24"/109 57'07"	ALc				FBC			FC		AgL
SP	Blacktail Pond	Fort Huachuca Military Reservation at 31 24'13"/110 17'21"		ALw			FBC			FC		
SP	Blackwater Draw	Headwaters to the US/Mexico border at 31 20'02"/109 15'36", in the San Bernardino Valley		ALw			FBC			FC		AgL
SP	Booger Canyon Creek	Tributary to Aravaipa Creek at 32 54'54"/110 29'35"		ALw			FBC			FC		AgL

Watershed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
SP	Buck Canyon	Headwaters to Buck Creek Tank at 31 33'06"/109 52'43"		ALw			FBC			FC		AgL
SP	Buck Canyon	Below Buck Creek <u>Tank to Dry Creek at 31 31'08"/109 18'25"</u>			ALe			PBC				AgL
SP	Buehman Canyon Creek <small>(Unique Water) Outstanding Arizona Water</small>	Headwaters to confluence with unnamed tributary at 32 24'31.5"/110 32'08"		ALw			FBC			FC		AgL
SP	Buehman Canyon Creek	Below confluence with unnamed <u>tributary to San Pedro River at 32 25'41"/110 29'53"</u>		ALw			FBC			FC		AgL
SP	Bull Tank	32 31'15"/110 12'45"		ALw			FBC			FC		AgL
SP	Bullock Canyon	Tributary to Buehman Canyon at 32 23'00"/110 33'04"		ALw			FBC			FC		AgL
SP	Carr Canyon Creek	Headwaters to confluence with unnamed tributary at 31 27'00"/110 15'45"	ALc				FBC			FC		AgL
SP	Carr Canyon Creek	Below confluence with unnamed <u>tributary to the San Pedro River at 31 30'32"/110 07'37"</u>		ALw			FBC			FC		AgL
SP	Copper Creek	Headwaters to confluence with Prospect Canyon at 32 44'48"/110 30'18"		ALw			FBC			FC		AgL
SP	Copper Creek	Below confluence with Prospect Canyon <u>to the San Pedro River at 32 41'17"/110 36 43</u>			ALe			PBC				AgL
SP	Deer Creek	Headwaters to confluence with unnamed tributary at 32 59'56"/110 20'09"	ALc				FBC			FC		AgL
SP	Deer Creek	Below confluence with unnamed tributary to Aravaipa Creek <u>at 32 54'25"/110 28'01"</u>		ALw			FBC			FC		AgL
SP	Dixie Canyon	<u>Headwaters to Mexican Canyon 31 29'02"/109 45'04", in the Mule Mountains</u>		ALw			FBC			FC		AgL
SP	Double R Canyon Creek	Tributary to Bass Canyon at 32 21'06"/110 14'23"		ALw			FBC			FC		
SP	Dry Canyon	<u>Headwaters to Abbott Canyon at 31 33'25"/109 43'23", in the Mule Mountains</u>		ALw			FBC			FC		AgL
SP	East Gravel Pit Pond	Fort Huachuca Military <u>Reservation at 31 30'54"/110 19'42"</u>		ALw			FBC			FC		

Watershed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
SP	Espiritu Canyon Creek	Tributary to Soza Wash at 32 18'52"/110 28'35"		ALw			FBC			FC		AgL
SP	Fly Pond	Fort Huachuca Military Reservation at 31 32'53"/110 21'14"		ALw			FBC			FC		
SP	Fourmile Canyon Creek	Tributary to Aravaipa Creek at 32 50'14"/110 20'08"		ALw			FBC			FC		AgL
SP	Fourmile Canyon, Left Prong	Headwaters to confluence with unnamed tributary at 32 43'14"/110 23'43"	ALc				FBC			FC		AgL
SP	Fourmile Canyon, Left Prong	Below confluence with unnamed tributary <u>to Fourmile Canyon Creek 32 47'33"/110 22'36"</u>		ALw			FBC			FC		AgL
SP	Fourmile Canyon, Right Prong	Tributary to Fourmile Canyon at 32 47'33"/110 22'36"		ALw			FBC			FC		AgL
SP	Gadwell Canyon	<u>Headwaters to Whitewater Draw 31 36'50"/109 43'41" in the Mule Mountains</u>		ALw			FBC			FC		AgL
SP	Garden Canyon Creek	Headwaters to confluence with unnamed tributary at 31 29'00"/110 19'42"	ALc				FBC		DWS	FC	Agl	
SP	Garden Canyon Creek	Below confluence with unnamed tributary <u>to the San Pedro River at 31 41'46"/110 12'40"</u>		ALw			FBC		DWS	FC	Agl	
SP	Glance Creek	<u>Headwaters to Whitewater Draw at 31 27'04"/109 42'29" in the Mule Mountains</u>		ALw			FBC			FC		AgL
SP	Gold Gulch	<u>Headwaters to US/Mexico border 31 20'10"/109 50'06" in the Mule Mountains</u>		ALw			FBC			FC		AgL
SP	Golf Course Pond	Fort Huachuca Military Reservation at 31 32'14"/110 18'49".		ALw			FBC			FC		
SP	Goudy Canyon Creek	<u>Headwaters to Grant Creek at 32 35'13"/109 58'37" in the Pinaleno Mountains</u>	ALc				FBC			FC		AgL
SP	Grant Creek	Headwaters to confluence with unnamed tributary at 32 38'09.5"/109 56'35"	ALc				FBC		DWS	FC		AgL
SP	Grant Creek	Below confluence with unnamed tributary <u>to terminus near Willcox Playa at 32 33'43"/109 58'55"</u>		ALw			FBC			FC		AgL

Water-shed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
SP	Gravel Pit Pond	Fort Huachuca Military Reservation at 31 30'51"/110 19'47.6"		ALw			FBC			FC		
SP	<u>Greenbush Draw</u>	From Mexican border to confluence with San Pedro River			ALe			PBC				
SP	Hidden Pond	Fort Huachuca Military Reservation at 32 30'30"/109 22'17"		ALw			FBC			FC		
SP	High Creek	Headwaters to confluence with unnamed tributary at 32 33'07"/110 14'40"	ALc				FBC			FC		AgL
SP	High Creek	Below confluence with unnamed tributary to terminus near Willcox Playa at 32 31'41"/100 02'38"		ALw			FBC			FC		AgL
SP	Horse Camp Canyon Creek	Tributary to Aravaipa Creek at 32 55'07"/110 30'56"		ALw			FBC			FC		AgL
SP	Hot Springs Canyon Creek	Tributary to the San Pedro River at 32 17'24"/110 22'55"		ALw			FBC			FC		AgL
SP	Johnson Canyon	<u>Headwaters to Whitewater Draw at 31 32'56"/109 46'19" in the Chiricahua Mountains</u>		ALw			FBC			FC		AgL
SP	Lake Cochise <u>(EDW)</u>	South of Twin Lakes Municipal Golf Course at 32 14' N/100 11' W at l(at/long).				ALedw		PBC				
SP	Leslie Canyon Creek	<u>Headwaters to Whitewater Draw at 31 32'10"/109 40'12" in the Chiricahua Mountains</u>		ALw			FBC			FC		AgL
SP	Lower Garden Canyon Pond	Fort Huachuca Military Reservation at l(at/long).		ALw			FBC			FC		
SP	Mexican Canyon	<u>Headwaters to Whitewater Draw at 31 29'13"/109 46'30" in the Mule Mountains</u>		ALw			FBC			FC		AgL
SP	Miller Canyon Creek	Headwaters to Broken Arrow Ranch Road at 31 25'33"/110 15'08"	ALc				FBC		DWS	FC		AgL
SP	Miller Canyon Creek	Below Broken Arrow Ranch Road to the San Pedro River at 31 29'56"/110 07'37"		ALw			FBC		DWS	FC		AgL
SP	Moonshine Creek	Tributary to Post Creek at 32 40'52"/109 54'25"	ALc				FBC			FC		AgL
SP	Mule Gulch	Headwaters to just above the Lavender Pit at 31 26'23.7"/109 45'36.7		ALw			PBC			FC		

Water-shed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
SP	Mule Gulch	Just above the Lavender Pit to the Bisbee WWTP outfall <u>at 31 25'30"/109 52'40"</u>			ALe			PBC				
SP	Mule Gulch (EDW)	Below the Bisbee WWTP outfall to the Highway 80 bridge at 31 26'30"/109 49'28"				ALedw		PBC				
SP	Mule Gulch	Below the Highway 80 bridge <u>to Whitewater Draw at 31 28'03"/109 42'21"</u>			ALe			PBC			AgL	
SP	Oak Grove Creek	Tributary to Turkey Creek at 32 45'32"/110 14'06"		ALw			FBC			FC	AgL	
SP	Officers Club Pond	Fort Huachuca Military Reservation <u>at 31 32'51"/110 21'35"</u>		ALw			FBC			FC		
SP	Paige Canyon Creek	Tributary to the San Pedro River at 32 17'10"/110 22'48"		ALw			FBC			FC	AgL	
SP	Parsons Canyon Creek	Tributary to Aravaipa Creek at 32 54'11"/110 27'40"		ALw			FBC			FC	AgL	
SP	Pinery Creek	Headwaters to State Highway 181 at 32 00'24"/109 25'16"	ALc				FBC		DWS	FC	AgL	
SP	Pinery Creek	<u>Below State Highway 181 to terminus near Willcox Playa at 32 01'05"/109 34'23".</u>		ALw			FBC		DWS	FC	AgL	
SP	Post Creek	Tributary to Grant Creek at 32 40'05"/109 54'58"	ALc				FBC			FC	Agl	AgL
SP	Ramsey Canyon Creek	Headwaters to Forest Service Road #110 at 31 27'44"/110 17'27"	ALc				FBC			FC	Agl	AgL
SP	Ramsey Canyon Creek	<u>Below Forest Service Road #110 to Carr Wash at 31 30'04"/110 09'11"</u>		ALw			FBC			FC	Agl	AgL
SP	Rattlesnake Canyon	Headwaters to confluence with Brush Canyon at 32 38'27"/110 21'24"	ALc				FBC			FC		AgL
SP	Rattlesnake Canyon	<u>Below confluence with Brush Canyon to Aravaipa Creek at 32 48'00"/110 17'38"</u>		ALw			FBC			FC		AgL
SP	Redfield Canyon Creek	Headwaters to confluence with unnamed tributary at 32 33'39"/110 18'41"	ALc				FBC			FC		AgL
SP	Redfield Canyon Creek	<u>Below confluence with unnamed tributary to the San Pedro River at 32 09'32"/110 17'56"</u>		ALw			FBC			FC		AgL

Watershed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	AgI	AgL
SP	Riggs Flat Lake	32 42'27"/109 57'51"	ALc				FBC			FC	AgI	AgL
SP	Rock Creek	Tributary to Turkey Creek at 31 53'20"/109 30'00"	ALc				FBC			FC		AgL
SP	Rucker Canyon Creek	<u>Chiricahua Mtns; tributary Headwaters</u> to Whitewater Draw at 31 44'46"/109 26'06"	ALc				FBC			FC		AgL
SP	Rucker Canyon Lake	31 46'46"/109 18'30"	ALc				FBC			FC		AgL
SP	San Pedro River	U.S./ Mexico Border to <u>Redington at 32 25'39"/110 29'33"</u>		ALw			FBC			FC	AgI	AgL
SP	San Pedro River	Redington to the Gila River <u>32 59'02"/110 46'55"</u>		ALw			FBC			FC		AgL
SP	Snow Flat Lake`	32 39'09"/109 51'52"	ALc				FBC			FC	AgI	AgL
SP	Soldier Creek	Tributary to Post Creek at 32 40'52"/109 54'40"	ALc				FBC			FC		AgL
SP	<u>Soldier Creek (EDW)</u>	<u>Fort Huachuca WWTP outfall to confluence with Babocomari River</u>				ALedw		PBC				
SP	Soto Canyon	<u>Headwaters to Dixie Canyon at 31 29'46"/109 55'37" in the Mule Mountains</u>		ALw			FBC			FC		AgL
SP	Swamp Springs Canyon Creek	Tributary to Redfield Canyon at 32 26'10"/110 19'30"		ALw			FBC			FC		AgL
SP	Sycamore Pond I	<u>Fort Huachuca Military Reservation at 31 35'12"/110 26'09".</u>		ALw			FBC			FC		
SP	Sycamore Pond II	<u>Fort Huachuca Military Reservation at 21 34'38.6/110 26'07".</u>		ALw			FBC			FC		
SP	Turkey Creek	Tributary to Aravaipa Creek at 32 53'49"/110 26'35"		ALw			FBC			FC		AgL
SP	Turkey Creek	Headwaters to confluence with Rock Creek at 31 53'20"/109 30'00"	ALc				FBC			FC	AgI	AgL
SP	Turkey Creek	<u>Below confluence with Rock Creek to terminus near Willcox Playa at 31 59'56"/109 49'01"</u>		ALw			FBC			FC	AgI	AgL

Watershed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
SP	Unnamed Wash (EDW)	Mt. Lemmon WWTP outfall to 0.25 km downstream				ALedw		PBC				
SP	Virgus Canyon Creek	Tributary to Aravaipa Creek at 32 54'58"/110 31'16"		ALw			FBC			FC		AgL
SP	Walnut Gulch	Headwaters to Tombstone WWTP outfall at 31 43'47"/110 04'06"			ALe			PBC				
SP	Walnut Gulch (EDW)	Tombstone WWTP outfall to the confluence of Tombstone Wash <u>at 31 44'02"/110 05'58"</u>				ALedw		PBC				
SP	Walnut Gulch	Tombstone Wash to San Pedro River at 31 43'19"/110 11'35"			ALe			PBC				
SP	Ward Canyon Creek	Tributary to Turkey Creek at 31 51'47"/109 20'13"	ALc				FBC			FC		AgL
SP	Whitewater Draw	Headwaters to confluence with unnamed tributary at 31 20'36"/109 34'46"			ALe			PBC				AgL
SP	Whitewater Draw	Below confluence with unnamed tributary <u>to US/Mexico border at 31 20'02"/109 34'44"</u>		ALw			FBC			FC		AgL
SP	Willcox Playa	<u>32 08'19"/109 50'59"</u> in the Sulphur Springs Valley		ALw			FBC			FC		AgL
SP	Woodcutters Pond	Fort Huachuca Military Reservation <u>at 31 30'11.5/110 20'15"</u>		ALw			FBC			FC		

Watershed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
SR	Ackre (Judge) Lake	33 37'00"/109 20'37"	ALc				FBC			FC	Agl	AgL
SR	Apache Lake	33 35'30"/111 20'30"	ALc				FBC		DWS	FC	Agl	AgL
SR	Barnhardt Creek	Headwaters to confluence with unnamed tributary at 34 05'36"/111 26'38"	ALc				FBC			FC		AgL
SR	Barnhardt Creek	Below confluence with unnamed tributary <u>to Rye Creek</u> at 34 06'58"/111 21'32".		ALw			FBC			FC		AgL
SR	Basin Lake	33 55'00"/109 26'05"		ALw			FBC			FC		AgL
SR	Bear Creek	Tributary to the Black River at 33 43'26"/109 22'30"	ALc				FBC			FC	Agl	AgL
SR	Bear Wallow Creek (<u>UW</u>) <u>Outstanding Arizona Water</u>	Tributary to the Black River at 33 37'44"/109 31'23"	ALc				FBC			FC		AgL
SR	Bear Wallow Creek, North Fork (<u>UW</u>) <u>Outstanding Arizona Water</u>	Tributary to Bear Wallow Creek at 33 35'53"/109 26'49"	ALc				FBC			FC		AgL
SR	Bear Wallow Creek, South Fork (<u>UW</u>) <u>Outstanding Arizona Water</u>	Tributary to Bear Wallow Creek at 33 35'53"/109 26'49"	ALc				FBC			FC		AgL
SR	Beaver Creek	Tributary to the Black River at 33 43'44"/109 21'07"	ALc				FBC			FC	Agl	AgL
SR	Big Lake	33 52'45"/109 25'00"	ALc				FBC		DWS	FC	Agl	AgL
SR	Black River	Tributary to the Salt River at 33 44'20"/110 13'30"	ALc				FBC		DWS	FC	Agl	AgL
SR	Black River, East Fork	Tributary to the Black River at 33 45'07"/109 21'43"	ALc				FBC		DWS	FC	Agl	AgL
SR	Black River, N Fork of E Fork	Tributary to Black River, East Fork at 33 56'17"/109 24'11"	ALc				FBC		DWS	FC	Agl	AgL
SR	Black River, West Fork	Tributary to the Black River at 33 45'07"/109 21'43"	ALc				FBC		DWS	FC	Agl	AgL
SR	Bloody Tanks Wash	Headwaters to Schultze Ranch at 33 22'29"/110 54'39"			ALe		PBC					AgL
SR	Bloody Tanks Wash	Schultze Ranch to Miami Wash at 33 25'05"/110 50'02".			ALe		PBC					
SR	Boggy Creek	Tributary to the Black River at 33 44'31"/109 26'20"	ALc				FBC			FC	Agl	AgL

Watershed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
SR	Boneyard Creek	Tributary to Black River, East Fork at 33 51'22"/109 18'50"	ALc				FBC			FC	Agl	AgL
SR	Boulder Creek	Tributary to LaBarge Creek at 33 30'54"/111 24'40"		ALw			FBC			FC		
SR	Campaign Creek	Tributary to Roosevelt Lake at 33 37'30"/111 00'04"		ALw			FBC			FC		AgL
SR	Canyon Creek	Headwaters to the White Mountain Apache Reservation at 33 57'53"/110 47'00"	ALc				FBC		DWS	FC	Agl	AgL
SR	Canyon Lake	33 33'15"/111 26'30"	ALc				FBC		DWS	FC	Agl	AgL
SR	Centerfire Creek	Tributary to the Black River at 33 42'47"/109 26'17"	ALc				FBC			FC	Agl	AgL
SR	Chambers Draw Creek	Tributary to North Fork of the East Fork of Black River, N Fork of E Fork at 33 53'03"/109 20'13"	ALc				FBC			FC		AgL
SR	Cherry Creek	Headwaters to confluence with unnamed tributary at 34 05'09"/110 56'04"	ALc				FBC			FC	Agl	AgL
SR	Cherry Creek	Below unnamed tributary <u>to the Salt River at 33 40'16"/110 48'03.6".</u>		ALw			FBC			FC	Agl	AgL
SR	Christopher Creek	Tributary to Tonto Creek at 34 18'36"/111 04'23"	ALc				FBC			FC	Agl	AgL
SR	Cold Spring Canyon Creek	Headwaters to confluence with unnamed tributary at 33 49'50"/110 52'55"	ALc				FBC			FC		AgL
SR	Cold Spring Canyon Creek	Below confluence with unnamed tributary <u>to Cherry Creek at 33 50'06"/110 51'28.8".</u>		ALw			FBC			FC		AgL
SR	Conklin Creek	Tributary to the Black River at 33 41'49"/109 27'36"	ALc				FBC			FC	Agl	AgL
SR	Coon Creek	Headwaters to confluence with unnamed tributary at 33 46'42"/110 54'25"	ALc				FBC			FC		AgL
SR	Coon Creek	Below confluence with unnamed tributary <u>to Salt River at 33 39'47"/110 50'24".</u>		ALw			FBC			FC		AgL
SR	Corduroy Creek	Tributary to Fish Creek at 33 59'46"/110 17'31"	ALc				FBC			FC	Agl	AgL
SR	Coyote Creek	Tributary to the Black River, East Fork at 33 50'53"/109 18'18"	ALc				FBC			FC	Agl	AgL

Watershed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
SR	Crescent Lake	33 54'36"/109 25'08"	ALc				FBC			FC	Agl	AgL
SR	Deer Creek	Tributary to the Black River, East Fork at 33 48'07"/109 19'26"	ALc				FBC			FC		AgL
SR	Del Shay Creek	Tributary to Gun Creek at 34 00'22"/111 15'43"		ALw			FBC			FC		AgL
SR	Devils Chasm Creek	Headwaters to confluence with unnamed tributary at 33 48'46"/110 52'33"	ALc				FBC			FC		AgL
SR	Devils Chasm Creek	Below confluence with unnamed tributary <u>to Cherry Creek at 33 49'34"/110 54'18"</u>		ALw			FBC			FC		AgL
SR	Dipping Vat Reservoir	33 55'54"/109 25'15"		ALw			FBC			FC		AgL
SR	Double Cienega Creek	Tributary to Fish Creek at 33 38'35"/109 22'08"	ALc				FBC			FC		AgL
SR	Fish Creek	Tributary to the Black River at 33 42'40"/109 26'31"	ALc				FBC			FC	Agl	AgL
SR	Fish Creek	Tributary to the Salt River at 33 34'37"/111 21'11"		ALw			FBC			FC		
SR	Gold Creek	Headwaters to confluence with unnamed tributary at 33 59'47"/111 25'07"	ALc				FBC			FC		AgL
SR	Gold Creek	Below confluence with unnamed tributary <u>to Tonto Creek at 33 58'55"/111 18'03.6"</u>		ALw			FBC			FC		AgL
SR	Gordon Canyon Creek	Headwaters to confluence with Hog Canyon at 34 13'49"/111 00'27"	ALc				FBC			FC		AgL
SR	Gordon Canyon Creek	Below confluence with Hog Canyon <u>to Haigler Creek at 34 11'56"/111 03'21.6"</u>		ALw			FBC			FC		AgL
SR	Greenback Creek	Tributary to Tonto Creek at 33 47'38"/111 15'22"		ALw			FBC			FC		AgL
SR	Haigler Creek	Headwaters to confluence with unnamed tributary at 34 12'23.5"/111 00'11"	ALc				FBC			FC	Agl	AgL
SR	Haigler Creek	Below confluence with unnamed tributary <u>to Tonto Creek at 34 12'54"/111 05'45.6</u>		ALw			FBC			FC	Agl	AgL
SR	Hannagan Creek	Tributary to Beaver Creek at 33 42'07"/109 14'46"	ALc				FBC			FC		AgL

Water-shed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
SR	Hay Creek (UW-) <u>Outstanding Arizona Water</u>	Tributary to the Black River, West Fork at 33 48'32"/109 25'16"	ALc				FBC			FC		AgL
SR	Home Creek	Tributary to the Black River, West Fork at 33 45'43"/109 22'48"	ALc				FBC			FC		AgL
SR	Horse Creek	Tributary to the Black River, West Fork at 33 45'11"/109 21'50"	ALc				FBC			FC		AgL
SR	Horse Camp Creek	Headwaters to confluence with unnamed tributary at 33 53'53"/110 50'10"	ALc				FBC			FC		AgL
SR	Horse Camp Creek	Below confluence with unnamed tributary <u>to Cherry Creek at 33 52'08 "/110 52'33.6"</u>		ALw			FBC			FC		AgL
SR	Horton Creek	Tributary to Tonto Creek at 34 20'24"/111 05'42"	ALc				FBC			FC	Agl	AgL
SR	Houston Creek	Tributary to Tonto Creek at 34 07'30"/111 15'25"		ALw			FBC			FC		AgL
SR	Hunter Creek	Tributary to Christopher Creek at 34 18'29"/111 01'55"	ALc				FBC			FC		AgL
SR	LaBarge Creek	<u>Superstition Wilderness Area; tributary</u> Headwaters to Canyon Lake <u>at 33 31'34"/111 25'15.6"</u>		ALw			FBC			FC		
SR	Lake Sierra Blanca	33 52'25"/109 16'05"	ALc				FBC			FC	Agl	AgL
SR	Miami Wash	Tributary to Pinal Creek at 33 27'04"/110 50'17"			ALe		PBC					
SR	Mule Creek	Tributary to Canyon Creek at 34 16'34"/110 48'00"	ALc				FBC		DWS	FC	Agl	AgL
SR	Open Draw Creek	Tributary to the <u>East Fork of Black River</u> <u>East Fork</u> at 33 49'52"/109 18'18"	ALc				FBC			FC		AgL
SR	P B Creek	Headwaters to Forest Service Road #203 at 33 57'08"/110 56'09"	ALc				FBC			FC		AgL
SR	P B Creek	Below Forest Service Road #203 <u>to Cherry Creek at 33 55'34"/110 54'18"</u>		ALw			FBC			FC		AgL
SR	Pinal Creek	Headwaters to confluence with unnamed EDW wash (Globe WWTP) <u>at 33 25'29"/110 48'18"</u>			ALe		PBC					AgL
SR	Pinal Creek (EDW)	Below unnamed EDW wash to Radium <u>at 33 26'54"/110 49'21"</u>				ALedw		PBC				

Water-shed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
SR	Pinal Creek	Radium to <u>Setka Ranch</u> lower Pinal Creek water treatment plant discharge at 33 32'05"/110 52'17".			ALe			PBC			AgL	
SR	Pinal Creek	<u>Setka Ranch</u> Lower Pinal Creek WTP discharge to Salt River at 33 37'12"/110 54'58"		ALw			FBC			FC	AgL	
SR	Pine Creek	Tributary to the Salt River at 33 36'04"/111 12'36"		ALw			FBC			FC		
SR	Pinto Creek	Headwaters to confluence with unnamed tributary at 33 19'27"/110 54'56"	ALc				FBC			FC	Agl	AgL
SR	Pinto Creek	Below confluence with unnamed tributary <u>to Roosevelt Lake</u> at 33 39'11"/111 00'43".		ALw			FBC			FC	Agl	AgL
SR	Pueblo Canyon Creek	Headwaters to confluence with unnamed tributary at 33 50'30"/110 53'13"	ALc				FBC			FC		AgL
SR	Pueblo Canyon Creek	Below confluence with unnamed tributary <u>to Cherry Creek</u> at 33 52'30 "/110 52'55".		ALw			FBC			FC		AgL
SR	Reevis Creek	Tributary to Pine Creek at 33 33'07"/111 09'40"		ALw			FBC			FC		
SR	Reservation Creek	Tributary to the Black River at 33 41'42"/109 28'26"	ALc				FBC			FC		AgL
SR	Reynolds Creek	Tributary to Workman Creek at 33 52'16"/111 00'14"	ALc				FBC			FC		AgL
SR	Roosevelt Lake	33 40'45"/111 09'15"		ALw			FBC		DWS	FC	Agl	AgL
SR	<u>Russell Gulch (EDW)</u>	<u>Cobre Valle Plaza WWTP outfall at 3324'56" N / 11049'43" W to confluence with Miami Wash</u>				ALedw		PBC				
SR	Rye Creek	Tributary to Tonto Creek at 34 01'41"/111 17'06"		ALw			FBC			FC		AgL
SR	Saguaro Lake	33 34'00"/111 32'06"	ALc				FBC		DWS	FC	Agl	AgL
SR	Salome Creek	Tributary to the Salt River at 33 41'56"/111 05'46"		ALw			FBC			FC	Agl	AgL
SR	Salt River	Above Roosevelt Lake Confluence of White River and Black River <u>to Roosevelt Lake</u> .		ALw			FBC			FC	Agl	AgL
SR	Salt River	Theodore Roosevelt Dam to the Verde River at <u>33 32'46"/111 39'40"</u>	ALc				FBC		DWS	FC	Agl	AgL

Watershed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
SR	Slate Creek	Tributary to Tonto Creek at 33 56'24"/111 18'25"		ALw			FBC			FC		AgL
SR	Snake Creek (<u>UW</u>) <u>Outstanding Arizona Water</u>	Tributary to the Black River at 33 40'30"/109 28'55"	ALc				FBC			FC		AgL
SR	Spring Creek	Tributary to Tonto Creek at 34 09'54"/111 10'08"		ALw			FBC			FC		AgL
SR	Stinky Creek (<u>UW</u>) <u>Outstanding Arizona Water</u>	Tributary to the Black River, West Fork at 33 51'22"/109 27'07"	ALc				FBC			FC		AgL
SR	Thomas Creek	Tributary to Beaver Creek at 33 42'29"/109 15'11"	ALc				FBC			FC		AgL
SR	Thompson Creek	Tributary to the <u>West Fork of the Black River</u> , <u>West Fork</u> at 33 53'24"/109 28'48"	ALc				FBC			FC		AgL
SR	Tonto Creek	Headwaters to confluence with unnamed tributary at 34 18'10"/111 04'14"	ALc				FBC			FC	Agl	AgL
SR	Tonto Creek	Below confluence with unnamed <u>tributary to Roosevelt Lake</u> at 33 45'14"/14'17".		ALw			FBC			FC	Agl	AgL
SR	Turkey Creek	Tributary to Rock Creek at 33 58'30"/111 06'47"	ALc				FBC			FC		
SR	Unnamed Wash (EDW)	Globe WWTP outfall at 33 25'46"/110 47'28" to Pinal Creek				ALedw		PBC				
SR	Wildcat Creek	Tributary to Centerfire Creek at 33 43'41"/109 26'28"	ALc				FBC			FC		AgL
SR	Willow Creek	Tributary to Beaver Creek at 33 43'52"/109 18'04"	ALc				FBC			FC		AgL
SR	Workman Creek	Headwaters to confluence with Reynolds Creek at 33 52'17"/111 00'14.5"	ALc				FBC			FC	Agl	AgL
SR	Workman Creek	Below confluence with Reynolds <u>Creek to Salome Creek</u> at 33 52'37"/111 02'20".		ALw			FBC			FC	Agl	AgL

Watershed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
UG	Apache Creek	Tributary to the Gila River at 32 52'08"/109 11'53"		ALw			FBC			FC		AgL
UG	Ash Creek	Headwaters to confluence with unnamed tributary at 32 45'37"/109 52'22"	ALc				FBC			FC		AgL
UG	Ash Creek	Below confluence with unnamed tributary <u>to Gila River at 32 53'35"/109 47'34.8"</u>		ALw			FBC			FC		AgL
UG	Bennett Wash (EDW)	ADOC-Safford WWTP outfall <u>at 32 50'20"/109 34'44"</u> to the Gila River				ALedw		PBC				
UG	Bitter Creek	Tributary to the Gila River at 32 50'17"/109 10'59"		ALw			FBC			FC		
UG	Blue River	Headwaters to confluence with Strayhorse Creek at 33 29'02"/110 12'12"	ALc				FBC			FC	Agl	AgL
UG	Blue River	Below confluence with Strayhorse Creek <u>to San Francisco River at 33 12'36"/109 11'27.6"</u>		ALw			FBC			FC	Agl	AgL
UG	Bonita Creek (<u>Unique Outstanding Arizona Water</u>)	San Carlos Indian Reservation to the Gila River at 32 53'35"/109 28'41"		ALw			FBC		DWS	FC		AgL
UG	Buckalou Creek	Tributary to Castle Creek at 33 43'34"/109 09'07"	ALc				FBC			FC		AgL
UG	Campbell Blue Creek	Tributary to the Blue River at 33 43'30"/109 02'46"	ALc				FBC			FC		AgL
UG	Castle Creek	Tributary to Campbell Blue Creek at 33 44'06"/109 08'10"	ALc				FBC			FC		AgL
UG	Cave Creek (<u>Unique Outstanding Arizona Water</u>)	Headwaters to confluence with South Fork Cave Creek at 31 53'04"/109 10'27"	ALc				FBC			FC	Agl	AgL
UG	Cave Creek (<u>Unique Outstanding Arizona Water</u>)	Below confluence with South Fork Cave Creek to Coronado NF National Forest boundary.		ALw			FBC			FC	Agl	AgL
UG	Cave Creek	Below Coronado NF Boundary <u>to New Mexico border at 31 58'19"/109 03'00"</u>		ALw			FBC			FC	Agl	AgL
UG	Cave Creek, South Fork	Tributary to Cave Creek at 31 53'04"/109 10'27"	ALc				FBC			FC	Agl	AgL
UG	Chase Creek	Headwaters to the Phelps-Dodge Morenci Mine <u>at (lat/long)</u>		ALw			FBC			FC		AgL

Watershed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
UG	Chase Creek	Below the Phelps-Dodge Morenci Mine at (lat/long) to San Francisco River at (lat/long)			ALe			PBC				
UG	Chitty Canyon Creek	Tributary to Salt House Creek at 33 30'32"/109 24'04"	ALc				FBC			FC	AgL	
UG	Cima Creek	Tributary to Cave Creek at 31 52'19"/109 14'02"	ALc				FBC			FC	AgL	
UG	Cluff Ranch Pond #1	32 48'55"/109 49'15"		ALw			FBC			FC	Agl	AgL
UG	Cluff Ranch Pond #2	32 49'15"/109 50'33"		ALw			FBC			FC	Agl	AgL
UG	Cluff Ranch Pond #3	32 48'20"/109 51'43"		ALw			FBC			FC	Agl	AgL
UG	Coleman Creek	Tributary to Campbell Blue Creek at 33 44'20"/109 09'32"	ALc				FBC			FC		AgL
UG	Dankworth Ponds	32 43'15"/109 42'15"	ALc				FBC			FC		
UG	Deadman Canyon Creek	Headwaters to confluence with unnamed tributary at 32 43'50"/109 49'01"	ALc				FBC		DWS	FC		AgL
UG	Deadman Canyon Creek	Below confluence with unnamed tributary to confluence with Graveyard Wash at 32 46'48"/109 44'13"		ALw			FBC		DWS	FC		AgL
UG	Eagle Creek	Headwaters to confluence with unnamed tributary at 33 23'24"/109 29'35"	ALc				FBC		DWS	FC	Agl	AgL
UG	Eagle Creek	Below confluence with unnamed tributary to Eagle Creek at 32 57'36"/109 24'21.6		ALw			FBC		DWS	FC	Agl	AgL
UG	East Eagle Creek	Tributary to Eagle Creek at 33 29'38"/109 28'05"	ALc				FBC			FC		AgL
UG	East Turkey Creek	Headwaters to confluence with unnamed tributary at 31 58'22"/109 12'17"	ALc				FBC			FC		AgL
UG	East Turkey Creek	Below confluence with unnamed tributary to terminus near San Simon River at 31 59'53"/109 07'37"		ALw			FBC			FC		AgL
UG	East Whitetail	Headwaters to terminus near San Simon River at 32 08'53"/109 09'25" in the Chiricahua Mountains		ALw			FBC			FC		AgL

Watershed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
UG	Emigrant Canyon	<u>Headwaters to terminus near San Simon River at 32 17'02"/109 20'27.6" in the Chiricahua Mountains</u>		ALw			FBC			FC		AgL
UG	Evans Pond	32 49'15"/109 51'15"		ALw			FBC			FC		
UG	Fishhook Creek	Tributary to the Blue River at 33 35'13"/109 10'01"	ALc				FBC			FC		AgL
UG	Foote Creek	Tributary to the Blue River at 33 35'24"/109 08'49"	ALc				FBC			FC		AgL
UG	Frye Canyon Creek	Headwaters to Frye Mesa Reservoir at 32 45'09.5"/109 50'02"	ALc				FBC		DWS	FC		AgL
UG	Frye Canyon Creek	<u>Below Frye Mesa Reservoir to Highline Canal</u> <u>Headwaters to terminus near San Simon River at 32 50'10"/109 45'43"</u>		ALw			FBC			FC		AgL
UG	Frye Mesa Reservoir	32 45'13"/109 50'00"	ALc				FBC		DWS	FC		
UG	Gibson Creek	Tributary to Marijilda Creek at 32 41'24"/109 48'11"	ALc				FBC			FC		AgL
UG	Gila River	New Mexico border to the San Carlos Indian Reservation at 33 05'37"/110 03'21"		ALw			FBC			FC	Agl	AgL
UG	Grant Creek	Tributary to the Blue River at 33 34'16"/109 10'37"	ALc				FBC			FC		AgL
UG	Judd Lake	33 51'15"/109 09'15"	ALc				FBC			FC		
UG	K P Creek (UW) Outstanding Arizona Water)	Tributary to the Blue River at 33 31'44"/109 12'04"	ALc				FBC			FC		AgL
UG	Lanphier Canyon Creek	Tributary to the Blue River at 33 35'42"/109 07'52"	ALc				FBC			FC		AgL
UG	Little Blue Creek	Headwaters to confluence with Dutch Blue Creek at 33 24'26.5"/109 09'18"	ALc				FBC			FC		AgL
UG	Little Blue Creek	<u>Below confluence with Dutch Blue Creek to Blue Creek</u> <u>at 33 22'30"/109 10'30"</u>		ALw			FBC			FC		AgL
UG	Little Creek	Tributary to the San Francisco River at 33 49'41"/109 04'26"	ALc				FBC			FC		
UG	Lower George's Reservoir	33 51'23.5"/109 08'28"	ALc				FBC			FC		AgL

Watershed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
UG	Luna Lake	33 49'45"/109 05'15"	ALc				FBC			FC		AgL
UG	Marijilda Creek	Headwaters to confluence with Gibson Creek at 32 41'23"/109 48'13"	ALc				FBC			FC		AgL
UG	Marijilda Creek	Below confluence with Gibson Creek <u>to Stockton Wash</u> at 32 46'30"/109 40'51.6"		ALw			FBC			FC	Agl	AgL
UG	Markham Creek	Tributary to the Gila River at 32 56'17"/109 53'13"		ALw			FBC			FC		AgL
UG	Pigeon Creek	Tributary to the Blue River at 33 16'08"/109 11'42"		ALw			FBC			FC		AgL
UG	Raspberry Creek	Tributary to the Blue River at 33 30'07"/109 12'32"	ALc				FBC			FC		
UG	Roper Lake	32 45'20"/109 42'11"		ALw			FBC			FC		
UG	San Francisco River	Headwaters to the New Mexico border at 33 49'24.5"/109 02'46"	ALc				FBC			FC	Agl	AgL
UG	San Francisco River	New Mexico border to the Gila River at 33 14'25"/109 02'49"		ALw			FBC			FC	Agl	AgL
UG	San Simon River	Tributary to the Gila River at 32 49'52"/109 38'53"			ALe		PBC					AgL
UG	Sheep Tank	32 46'15"/109 48'08"		ALw			FBC			FC		AgL
UG	Smith Pond	32 49'09"/109 50'26"		ALw			FBC			FC		
UG	Squaw Creek	Tributary to Thomas Creek at 33 23'38"/109 12'22"	ALc				FBC			FC		AgL
UG	Stone Creek	Tributary to the San Francisco River at 33 50'38"/109 02'46"	ALc				FBC			FC	Agl	AgL
UG	Strayhorse Creek	Tributary to the Blue River at 33 29'02"/109 12'11"	ALc				FBC			FC		
UG	Thomas Creek	Headwaters to confluence with Rousenock Creek at 33 23'45"/109 13'13"	ALc				FBC			FC		AgL
UG	Thomas Creek	Below confluence with Rousenock Creek <u>to Blue River</u> 33 23'20"/109 11'20"		ALw			FBC			FC		AgL
UG	Tinny Pond	33 47'49"/109 04'23"		ALw			FBC			FC		AgL

Water-shed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
UG	Turkey Creek	Tributary to Campbell Blue Creek at 33 44'10"/109 04'05"	ALc				FBC			FC		AgL
UG	Unnamed Wash (EDW)	ADOC-Globe WWTP outfall <u>at 33 24'55"/110 42'35"</u> to the San Carlos Indian Reservation				ALedw		PBC				

Watershed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
VR	American Gulch	Headwaters to the Northern Gila County Sanitary District WWTP outfall (Payson) <u>34 14'05"/111 22'18"</u>		ALw			FBC			FC	Agl	AgL
VR	American Gulch (EDW)	Northern Gila County Sanitary District WWTP outfall (Payson) to the East Verde River <u>at 34 14'42"/111 25'08"</u>				ALedw		PBC				
VR	Apache Creek	Tributary to Walnut Creek at 34 55'12"/112 50'42"		ALw			FBC			FC		AgL
VR	Ashbrook Wash	Headwaters to the Ft McDowell Reservation at 33 36'54"/111 42'06"			ALe			PBC				
VR	Aspen Creek	Tributary to Granite Creek at 34 31'55"/112 28'19"		ALw			FBC			FC		
VR	Bar Cross Tank	35 00'40"/112 05'34"		ALw			FBC			FC		AgL
VR	Barrata Tank	35 02'43"/112 24'17"		ALw			FBC			FC		AgL
VR	Bartlett Lake	33 49'00"/111 37'45"		ALw			FBC		DWS	FC	Agl	AgL
VR	Beaver Creek	Tributary to the Verde River at 34 34'26"/111 51'14"		ALw			FBC			FC		AgL
VR	Big Chino Wash	Tributary to Sullivan Lake at 34 52'37"/112 28'37"			ALe			PBC				AgL
VR	Bitter Creek	Headwaters to the Jerome WWTP outfall <u>at 34 45'08"/112 06'25"</u>			ALe			PBC				AgL
VR	Bitter Creek (EDW)	Jerome WWTP outfall to the Yavapai Apache Indian Reservation at 34 45'45.5"/112 04'44"				ALedw		PBC				AgL
VR	Bitter Creek	Below the Yavapai Apache Indian Reservation <u>to the Verde River at 34 46'37"/112 02'53"</u>		ALw			FBC			FC	Agl	AgL
VR	Black Canyon Creek	Headwaters to confluence with unnamed tributary at 34 39'20"/112 05'05"	ALc				FBC			FC		AgL
VR	Black Canyon Creek	Below confluence with unnamed tributary <u>to the Verde River at 34 40'59"/111 57'28.8"</u>		ALw			FBC			FC		AgL
VR	Bonita Creek	Tributary to Ellison Creek at 34 20'56"/111 14'20"	ALc				FBC			FC		
VR	Bray Creek	Tributary to Webber Creek at 34 22'37"/111 20'53"	ALc				FBC			FC		AgL
VR	Camp Creek	Tributary to the Verde River at 33 45'32"/111 30'14"		ALw			FBC			FC		AgL

Water-shed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
VR	Carter Tank	34 52'27"/112 57'28"		ALw			FBC			FC		AgL
VR	Cereus Wash	Headwaters to the Fort McDowell Indian Reservation at 33 34'13"/111 42'28"			ALe			PBC				
VR	Chase Creek	Tributary to the East Verde River at 34 22'48"/111 16'59"	ALc				FBC		DWS	FC		
VR	Clover Creek	Tributary to headwaters of West Clear Creek at 34 33'04"/111 24'11"	ALc				FBC			FC		AgL
VR	Coffee Creek	Tributary to Spring Creek at 34 48'18"/111 55'41"		ALw			FBC			FC		AgL
VR	Colony Wash	Headwaters to the Fort McDowell Indian Reservation at 33 35'42"/111 42'15"			ALe			PBC				
VR	Dead Horse Lake	34 45'00"/112 00'30"	ALc				FBC			FC		
VR	Deadman Creek	Tributary to Horseshoe Reservoir at 34 00'00"/111 42'36"		ALw			FBC			FC		AgL
VR	Del Rio Dam Lake	34 48'55"/112 28'00"		ALw			FBC			FC		AgL
VR	Dry Beaver Creek	Tributary to Beaver Creek at 34 37'59"/111 49'34"		ALw			FBC			FC	Agl	AgL
VR	<u>Dry Creek (EDW)</u>	Sedona Ventures WWTP outfall at 3450'45" N / 11152'15" W to 0.75 mile downstream of outfall				ALedw		PBC				
VR	Dude Creek	Tributary to the East Verde River at 34 23'06"/111 16'26"	ALc				FBC			FC	Agl	AgL
VR	East Verde River	Headwaters to confluence with Ellison Creek at 34 21'10"/111 16'47.5"	ALc				FBC		DWS	FC	Agl	AgL
VR	East Verde River	Below confluence with Ellison Creek <u>to the Verde River at 34 17'02/111 40'19"</u>		ALw			FBC		DWS	FC	Agl	AgL
VR	Ellison Creek	Tributary to the East Verde River at 34 21'11"/111 16'48"	ALc				FBC			FC		AgL
VR	Fossil Creek	Tributary to the Verde River at 34 18'22"/111 40'30"		ALw			FBC			FC		AgL
VR	Fossil Springs	34 25'24"/111 34'25"		ALw			FBC		DWS	FC		

Watershed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
VR	Foxboro Lake	34 53'48"/111 40'00"		ALw			FBC			FC		AgL
VR	Fry Lake	35 03'45"/111 48'02"		ALw			FBC			FC		AgL
VR	Gap Creek	Headwaters to Government Spring at 34 23'23"/111 50'53.5"	ALc				FBC			FC		AgL
VR	Gap Creek	Below Government Spring <u>to the Verde River at 34 24'50"/111 46'51.6"</u>		ALw			FBC			FC		AgL
VR	Garrett Tank	35 18'57"/112 42'16"		ALw			FBC			FC		AgL
VR	Goldwater Lake, Lower	34 29'55"/112 27'18"	ALc				FBC		DWS	FC		
VR	Goldwater Lake, Upper	34 29'51"/112 26'55"	ALc				FBC		DWS	FC		
VR	Granite Basin Lake	34 37'01"/112 42'16"		ALw			FBC			FC	Agl	AgL
VR	Granite Creek	Headwaters to confluence with Willow Creek at 34 36'55"/112 25'05"	ALc				FBC			FC	Agl	AgL
VR	Granite Creek	Below confluence with Willow Creek <u>to the Verde River at 34 52'54"/112 25'05"</u>		ALw			FBC			FC	Agl	AgL
VR	Heifer Tank	35 20'28"/112 32'56"		ALw			FBC			FC		AgL
VR	Hell Canyon Tank	35 05'00"/112 24'06"		ALw			FBC			FC		AgL
VR	Homestead Tank	35 21'23"/112 41'32"		ALw			FBC			FC		AgL
VR	Horse Park Tank	34 58'15"/111 36'29"		ALw			FBC			FC		AgL
VR	Horseshoe Reservoir	33 59'00"/111 42'30"		ALw			FBC			FC	Agl	AgL
VR	Houston Creek	Tributary to the Verde River at 34 16'55"/111 41'06"		ALw			FBC			FC		AgL
VR	J.D. Dam Lake	35 04'01"/112 01'40"	ALc				FBC			FC	Agl	AgL
VR	Jacks Canyon Wash	Headwaters to Big Park WWTP outfall at 34 45'32"/111 45'10"			ALe		PBC					
VR	Jacks Canyon Wash (EDW)	Big Park WWTP outfall to Dry Beaver Creek <u>at 34 44'28"/111 46'01"</u>				ALedw	PBC					

Watershed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
VR	Lime Creek	Tributary to Horseshoe Reservoir at 33 59'20"/111 44'13"		ALw			FBC			FC		AgL
VR	McLellan Reservoir	35 13'15"/112 17'05"		ALw			FBC			FC	Agl	AgL
VR	Meath Dam Tank	35 07'46"/112 27'35"		ALw			FBC			FC		AgL
VR	Mulligan Place Tank	34 44'16"/111 36'08"		ALw			FBC			FC		AgL
VR	Oak Creek (<u>Unique Outstanding Arizona Water</u>)	Headwaters to confluence with unnamed tributary at 34 57'08.5"/111 45'13"	ALc				FBC		DWS	FC	Agl	AgL
VR	Oak Creek (Unique Water)	Below confluence with unnamed tributary		ALw			FBC		DWS	FC	Agl	AgL
VR	Oak Creek, West Fork (<u>Unique Outstanding Arizona Water</u>)	Tributary to Oak Creek at 34 59'13"/111 44'46"	ALc				FBC			FC		AgL
VR	Odell Lake	34 56'02"/111 37'52"	ALc				FBC			FC		
VR	Peck's Lake	34 47'07"/112 02'30"	ALc				FBC			FC	Agl	AgL
VR	Perkins Tank	35 06'42"/112 04'08"	ALc				FBC			FC		AgL
VR	Pine Creek	Headwaters to confluence with unnamed tributary at 34 21'51"/111 26'46"	ALc				FBC		DWS	FC	Agl	AgL
VR	Pine Creek	Below confluence with unnamed tributary <u>to East Verde River</u> at 34 13'19"/111 29'27.6"		ALw			FBC		DWS	FC	Agl	AgL
VR	Red Creek	Tributary to the Verde River at 34 09'47"/111 43'12"		ALw			FBC			FC		AgL
VR	Red Lake	35 12'19"/113 03'55"		ALw			FBC			FC		AgL
VR	Reservoir #1	35 13'05"/111 50'07"		ALw			FBC			FC		
VR	Reservoir #2	35 13'16"/111 50'36"		ALw			FBC			FC		
VR	Roundtree Canyon Creek	Tributary to Tangle Creek at 34 09'04"/111 48'18"		ALw			FBC			FC		AgL
VR	Scholze Lake	35 11'53"/112 00'31"		ALw			FBC			FC		AgL
VR	Silver Spring Gulch (EDW)	<u>Phelps Dodge Iron King Water Treatment Project outfall to (need downstream terminus)</u>				ALedw		PBC				

Watershed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
VR	Spring Creek	Headwaters to confluence with unnamed tributary at 34 57'23.5"/111 57'19"	ALc				FBC			FC	Agl	AgL
VR	Spring Creek	Below confluence with unnamed tributary to Oak Creek at 34 44'38"/111 54'		ALw			FBC			FC	Agl	AgL
VR	Steel Dam Lake	35 13'36"/112 24'51"	ALc				FBC			FC		AgL
VR	Stehr Lake	34 21'59"/111 40'00"		ALw			FBC			FC		AgL
VR	Stone Dam Lake	35 13'36"/112 24'16"	ALc				FBC			FC	Agl	AgL
VR	Stoneman Lake	34 46'44"/111 31'05"	ALc				FBC			FC	Agl	AgL
VR	Sullivan Lake	34 51'46"/112 27'41"		ALw			FBC			FC	Agl	AgL
VR	Sycamore Creek	Headwaters to confluence with unnamed tributary at 35 03'40"/111 57'28"	ALc				FBC			FC	Agl	AgL
VR	Sycamore Creek	Below confluence with unnamed tributary to Verde River at 34 51'47"/112 04'41"		ALw			FBC			FC	Agl	AgL
VR	Sycamore Creek	Tributary to Verde River at 33 37'55"/111 39'58"		ALw			FBC			FC	Agl	AgL
VR	Sycamore Creek	Tributary to Verde River at 34 04'42"/111 42'14"		ALw			FBC			FC		AgL
VR	Tangle Creek	Tributary to the Verde River at 34 05'06"/111 42'36"		ALw			FBC			FC	Agl	AgL
VR	Trinity Tank	35 27'44"/112 47'56"		ALw			FBC			FC		AgL
VR	Unnamed Wash (EDW)	Bellemont WWTP outfall to Volunteer Wash				ALedw		PBC				
VR	Unnamed Wash (EDW)	Chapparal City Water Company outfall at 33 35' 05" / 111 44' 45" to Cereus Wash				ALedw		PBC				
VR	Verde River	Above Bartlett Dam, from confluence of Chino Wash and Granite Creek to Bartlett Lake.		ALw			FBC			FC	Agl	AgL
VR	Verde River	Below Bartlett Lake Dam to Salt River.		ALw			FBC		DWS	FC	Agl	AgL
VR	Walnut Creek	Tributary to Big Chino Wash at 34 58'12"/112 34'55"		ALw			FBC			FC		AgL
VR	Watson Lake	34 35'15"/112 25'05"		ALw			FBC			FC	Agl	AgL

Watershed	Surface Waters	Segment Description and Location	Aquatic and Wildlife				Human Health			Agricultural		
			ALc	ALw	ALe	ALedw	FBC	PBC	DWS	FC	Agl	AgL
VR	Webber Creek	Tributary to the East Verde River at 34 18'50"/111 19'55"	ALc				FBC			FC		AgL
VR	West Clear Creek	Headwaters to confluence with Meadow Canyon at 34 33'40"/111 31'30"	ALc				FBC			FC		AgL
VR	West Clear Creek	Below confluence with Meadow Canyon <u>to the Verde River at 34 30'14"/111 49'41"</u>		ALw			FBC			FC	Agl	AgL
VR	Wet Beaver Creek	Headwaters to unnamed springs at 34 41'17"/111 34'34"	ALc				FBC			FC	Agl	AgL
VR	Wet Beaver Creek	Below unnamed springs <u>to Dry Beaver Creek at 34 37'59"/111 49'33.6"</u>		ALw			FBC			FC	Agl	AgL
VR	Whitehorse Lake	35 07'00"/112 00'47"	ALc				FBC		DWS	FC	Agl	AgL
VR	Williamson Valley Wash	Headwaters to confluence with Mint Wash at 34 49'05"/112 37'55"			ALe		PBC					AgL
VR	Williamson Valley Wash	Confluence of Mint Wash to 10.5 km downstream <u>at 34 49'05"/111 37'55"</u>		ALw			FBC			FC		AgL
VR	Williamson Valley Wash	Below 10.5 km downstream of Mint Wash confluence <u>to Big Chino Wash at 32 52'52"/112 28'48"</u>			ALe		PBC					AgL
VR	Williscraft Tank	35 11'23"/112 35'38"		ALw			FBC			FC		AgL
VR	Willow Creek	Tributary to Granite Creek at 34 51'47"/112 25'52"	ALc				FBC			FC		AgL
VR	Willow Creek Reservoir	34 36'17"/112 26'19"		ALw			FBC			FC	Agl	AgL
VR	Willow Valley Lake	34 41'08"/111 19'57"		ALw			FBC			FC		AgL

Appendix C. Effluent Dependent Waters

Basin	Name of EDW	Location	Designated Uses				
			ALedw	PBC	FC	AgI	AgL
BW	Unnamed Wash	Planet Truck Wash outfall at 3510'44" / 110 47'27" to below Petro Shopping Center outfall	ALedw	PBC			
CG	Bright Angel Wash	South Rim Grand Canyon WWTP outfall to confluence with Coconino Wash	ALedw	PBC			AgL
CG	Cataract Creek	Williams WWTP outfall to 1 km downstream from outfall	ALedw	PBC			
CG	Coconino Wash	South Grand Canyon Sanitary District Tusayan WRF outfall to Coconino Wash to (need downstream terminus)	ALedw	PBC			
CG	Transect Canyon	North Rim Grand Canyon WWTP outfall to 1 km downstream from outfall	ALedw	PBC			

Basin	Name of EDW	Location	Designated Uses				
			ALedw	PBC	FC	AgI	AgL
CL	Holy Moses Wash	Kingman WWTP outfall to 3 km downstream from outfall	ALedw	PBC			
CL	Tyson Wash	Town of Quartzite WWTP outfall at 3342'30"N / 11413'14"W to (need downstream terminus) ?	ALedw	PBC			
LCR	Dry Lake	Latitude: 34 37' 52" Longitude: 110 23' 40"	ALedw	PBC			
LCR	Lake Humphreys	Latitude: 35 11' 51" Longitude: 111 35' 16"	ALedw	PBC			
LCR	Lower Walnut Canyon Lake	Latitude: 35 12' 04" Longitude: 111 34' 07"	ALedw	PBC			
LCR	Ned Lake	Latitude: 32 17' 18" Longitude: 110 03' 20"	ALedw	PBC			
LCR	Pintail Lake	Latitude: 34 18'06" Longitude: 110 01' 17"	ALedw	PBC			
LCR	Puerco River	Sanders Unified School District WWTP outfall to (need downstream terminus)	ALedw	PBC			
LCR	Rio de Flag	City of Flagstaff WWTP outfall to confluence with San Francisco Wash	ALedw	PBC			

Basin	Name of EDW	Location	Designated Uses				
			ALedw	PBC	FC	AgI	AgL
LCR	Telephone Lake	Latitude: 34° 17' 35" Longitude: 110° 02' 39"	ALedw	PBC			
LCR	Turkey Draw	High Country Pines II WWTP outfall to Turkey Draw to confluence with Black Canyon Creek	ALedw	PBC			
LCR	Unnamed wash	Bison Ranch WWTP outfall to unnamed wash to confluence with Pierce Seep	ALedw	PBC			
LCR	Unnamed wash	Black Mesa Ranger Station WWTP outfall at 3423'32"N / 11053'32" W to unnamed wash to confluence with Pierce Wash	ALedw	PBC			
LCR	Unnamed wash	Estates at Pine Canyon WWTP outfall to unnamed wash to Bow Wash and Arrow Wash (tributaries to the Rio de Flag)	ALedw	PBC			
LCR	Whale Lake	Latitude: 35° 11' 32" Longitude: 111° 34' 42"	ALedw	PBC			
MG	Agua Fria River	Below confluence with unnamed wash receiving effluent from Prescott Valley WWTP to State Route 169	ALedw	PBC			AgL
MG	Agua Fria River	El Mirage WWTP outfall to 2 km downstream from the outfall	ALedw	PBC			

Basin	Name of EDW	Location	Designated Uses				
			ALedw	PBC	FC	AgI	AgL
MG	Agua Fria River	City of Avondale WWTP outfall at 33°23'57" N / 112°21'07" W to confluence with Gila River	ALedw	PBC			
MG	Cave Creek Wash	Town of Cave Creek WWTP outfall to Andorra Wash and Galloway Wash	ALedw	PBC			
MG	Cave Creek Wash	City of Phoenix Cave Creek WRF to unnamed tributary to confluence with Cave Creek	ALedw	PBC			
MG	East Maricopa Floodway	City of Mesa SE Water Reclamation Facility outfall at 33°21'54" N / 111°41'14" to Gila River Indian Community boundary	ALedw	PBC			
MG	Gila River	Florence WWTP outfall to Felix Road	ALedw	PBC			
MG	Gila River	From confluence with Salt River to Gillespie Dam	ALedw	PBC	FC	AgI	AgL
MG	Hassayampa River	Tartesso Sewer System Water Reclamation Facility outfall at 33°27'56"N / 112°44'31"W to (need downstream terminus)	ALedw	PBC			
MG	McMicken Wash	Jomax WWTP outfall to McMicken Wash to confluence with Agua Fria River	ALedw	PBC			
MG	New River	South Peoria Water Reclamation Facility outfall at 33°33'45" N / 112°16'26" W to New River (need downstream terminus).	ALedw	PBC			

Basin	Name of EDW	Location	Designated Uses				
			ALedw	PBC	FC	AgI	AgL
MG	Queen Creek	Town of Superior WWTP outfall to confluence with Potts Canyon	ALedw	PBC			
MG	Quilitosa Wash	USAF Luke AFB Auxiliary Field WWTP outfall at 32 52' 51" / 112 43' 59" to Gila River	ALedw	PBC			
MG	Salt River	City of Mesa NW Water Reclamation Facility outfall at 3326'10"N / 11153"10"W to Salt River to Tempe Town Lake	ALedw	PBC			
MG	Salt River	City of Tempe Kyrene Water Reclamation Facility outfall at 3321'45"N / 11156'35"W to I-10 bridge over the Salt River	ALedw	PBC			
MG	Salt River	City of Phoenix 23 rd Avenue WWTP outfall to its confluence with the Gila River	ALedw	PBC	FC	AgI	AgL
MG	Siphon Draw	Superstition Mountains WWTP outfall at 3321'40"N / 11133'30"W to Queen Creek	ALedw	PBC			
MG	Wagner Wash	Buckeye Festival Ranch WRF outfall at 3339'14"N/ 11240'18"W to Wagner Wash to confluence with Hassayampa River	ALedw	PBC			
MG	Unnamed Wash	Gila Bend WWTP outfall to confluence with Gila River	ALedw	PBC			

Basin	Name of EDW	Location	Designated Uses				
			ALedw	PBC	FC	AgI	AgL
MG	Unnamed Wash	Luke AFB WWTP outfall to unnamed wash to its confluence with Agua Fria	ALedw	PBC			
MG	Unnamed Wash	Queen Valley WWTP outfall to unnamed wash to its confluence with Queen Creek	ALedw	PBC			
MG	Unnamed Wash	Entrada del Oro WWTP outfall at 3319'17" N / 11122'17"W to unnamed wash to its confluence with Queen Creek	ALedw	PBC			
MG	Unnamed Wash	City of Goodyear Rainbow Valley WRF outfall at 3317'42"N / 11226'58" W to unnamed wash tributary to Waterman Wash to Gila River	ALedw	PBC			
MG	Unnamed wash	Rancho 160 WWTP outfall at 3317'02"N / 11121'09" to unnamed wash to its confluence with Queen Creek	ALedw	PBC			
MG	Unnamed Wash	Town of Prescott Valley WWTP outfall to unnamed wash to its confluence with Agua Fria River	ALedw	PBC			
MG	Unnamed wash	Florence Gardens WWTP outfall at 3303'49.54"N / 111 23'13.28"W to unnamed wash to its confluence with the Gila River	ALedw	PBC			

Basin	Name of EDW	Location	Designated Uses				
			ALedw	PBC	FC	AgI	AgL
MG	Unnamed Wash	Phelps Dodge Christmas Mine outfall at 33 05' 24" / 110 42' 36" to unnamed wash to its confluence with Dripping Springs Wash	ALedw	PBC			
MG	Unnamed Wash	Tempe Papago WTP outfall at 33 26' 38" / 111 56' 04" to unnamed wash to Papago Park Pond South	ALedw	PBC			
SC	Black Wash	Pima County WWMD Avra Valley WWTP discharge to Black Wash to its confluence with Brawley Wash	ALedw	PBC			
SC	Julian Wash	Tucson Fire Station #10 outfall to Julian Wash to 2.2 miles downstream.	ALedw	PBC			
SC	Lakeside Lake	Tucson Water Department reclaimed water discharge to Lakeside Lake	ALedw	PBC			
SC	North Branch of Santa Cruz River	City of Casa Grande WRF outfall at 3254'57" N / 11147'13" W to the North Branch of the Santa Cruz to....	ALedw	PBC			
SC	Santa Cruz River	Nogales International WWTP outfall to Tubac Bridge	ALedw	PBC			AgL

Basin	Name of EDW	Location	Designated Uses				
			ALedw	PBC	FC	AgI	AgL
SC	Santa Cruz River	Pima County WWMD Green Valley WWTP outfall at 3154'7.2" N / 11058'21.8" W to Roger Road WWTP	ALedw	PBC			
SC	Santa Cruz River	Pima County WWMD Roger Road WWTP outfall to Baumgartner Road crossing	ALedw	PBC			
SC	Santa Rosa Wash	Palo Verde Utilities WWTP outfall at 3304'20"N / 11201'47" W to Santa Rosa Wash to Santa Cruz River	ALedw	PBC			
SC	Sonoita Creek	Town of Patagonia WWTP outfall to permanent groundwater upwelling point 1600 ft downstream of outfall	ALedw	PBC			AgL
SC	Unnamed wash	Arizona City Sanitary District WWTP outfall at 32 45'4" N / 11145'38" W to unnamed wash to Santa Cruz Wash	ALedw	PBC			
SC	Unnamed wash	Oracle WWTP outfall to 5 km downstream	ALedw	PBC			
SC	Unnamed wash	Mountain Pass WWTP to unnamed wash to Big Wash	ALedw	PBC			

Basin	Name of EDW	Location	Designated Uses				
			ALedw	PBC	FC	AgI	AgL
SC	Unnamed wash	Saddlebrooke WWTP outfall to unnamed wash to confluence with Canada del Oro	ALedw	PBC			
SP	Lake Cochise	Town of Willcox WWTP discharge, south of Twin Lakes Municipal Golf Course at 32°14' N / 109°11' W	ALedw	PBC			
SP	Mule Gulch	City of Bisbee Mule Gulch WWTP outfall to Highway 80 bridge	ALedw	PBC			
SP	Soldier Creek	Fort Huachuca WWTP outfall to Soldier Creek to confluence with Babocomari River	ALedw	PBC			
SP	Unnamed Wash	Mt. Lemmon WWTP outfall to 0.25 km downstream	ALedw	PBC			
SP	Walnut Gulch	Tombstone WWTP outfall to its confluence with Tombstone Gulch	ALedw	PBC			
SR	Pinal Creek	From confluence of unnamed wash receiving effluent from the Globe WWTP to Radium	ALedw	PBC			
SR	Russell Gulch	Cobre Valle Plaza WWTP outfall at 3324'56" N / 11049'43" W to Russell Gulch to its confluence with Miami Wash	ALedw	PBC			

Basin	Name of EDW	Location	Designated Uses				
			ALedw	PBC	FC	AgI	AgL
SR	Unnamed Wash	Globe WWTP outfall to its confluence with Pinal Creek	ALedw	PBC			
UG	Bennett Wash	Arizona Dept. of Corrections-Safford WWTP outfall to the Gila River	ALedw	PBC			
UG	Unnamed Wash	Arizona Dept. of Corrections-Globe WWTP to the San Carlos Indian Reservation	ALedw	PBC			
VR	American Gulch	Northern Gila County Sanitary District WWTP outfall to the East Verde River	ALedw	PBC			
VR	Bitter Creek	Jerome WWTP outfall to 2.5 km downstream from the outfall	ALedw	PBC			AgL
VR	Dry Creek	Sedona Venture WWTP outfall at 3450°45'N / 11152°15"W to Dry Creek to ¾ mile downstream of outfall	ALedw	PBC			
VR	Jacks Canyon Wash	Big Park WWTP outfall to confluence with Dry Beaver Creek	ALedw	PBC			
VR	Silver Spring Gulch	Phelps Dodge Iron King Water Treatment Project outfall at 34 42' 07" / 112 05' 30" to Silver Spring Gulch	ALedw	PBC			

Basin	Name of EDW	Location	Designated Uses				
			ALedw	PBC	FC	AgI	AgL
VR	Unnamed wash	Bellemont WWTP outfall into unnamed wash to Volunteer Wash	ALedw	PBC			
VR	Unnamed Wash	Chapparal City Water Company outfall at 33 35' 05" / 111 44' 45" to Cereus Wash	ALedw	PBC			

Page 19: [1] Comment [sep64] **Steve Pawlowski** **8/9/2005 11:55:00**

EPA recommends a single sample maximum *E. coli* concentration of 575 for surface waters that are “infrequently used for full body contact recreation.” ADEQ believes that this SSM is appropriate for most Arizona surface waters – other than designated bathing beaches.

Page 19: [2] Comment [sep66] **Steve Pawlowski** **8/19/2005 10:48:00**

ADEQ proposes to repeal the “maximum change due to discharge” criterion of 0.5 standard units because it is inconsistent with the pH criteria that are expressed as an allowable range.

Page 19: [3] Comment [sep68] **Steve Pawlowski** **7/15/2005 16:05:00**

Moved to Appendix A. Numeric Water Quality Standards table. Suspended sediment concentration (SSC) criteria are expressed as chronic criteria for the ALc and ALw designated uses. ADEQ is soliciting comment on the appropriate numeric SSC concentration to protect aquatic life.